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GOVERNMENT OF THE PHILIPPINE ISLANDS
DEPARTMENT OF THE INTERIOR
BUREAU OF PUBLIC HEALTH

ANNUAL REPORT OF THE COMMISSIONER OF PUBLIC HEALTH

COVERING THE
PERIOD FROM SEPTEMBER 1, 1903, TO
AUGUST 31, 1904

MANILA
BUREAU OF PUBLIC PRINTING
1905

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ANNUAL REPORT OF THE COMMISSIONER OF PUBLIC HEALTH FOR THE YEAR 1903.

DEPARTMENT OF THE INTERIOR,
BUREAU OF PUBLIC HEALTH,
Manila, P. I., September 15, 1904.

SIR: Pursuant to the requirements of Act No. 157, providing for the establishment of a Board of Health for the Philippine Islands, and in accordance with special instructions received from the Secretary of the Interior, I have the honor to submit my second annual report which, unless otherwise stated, covers the operations of this Bureau for the year ended August 31, 1904:

The law prescribes that the Insular Board of Health shall have general supervision over all the interests of the public health in the Philippine Islands and shall especially study their vital statistics and shall make inquiry and investigation into the causes, pathology, and means of preventing diseases, especially epidemic diseases, including those of domestic animals, together with the sources of mortality and the effects of localities, employments, conditions, habits, foods, beverages, and medicines on the health of the people, and into the chemical composition and medicinal properties of the minero-medicinal waters of the Archipelago; disseminate useful information upon these and other kindred subjects among the people; draft and recommend to the central legislative body suitable sanitary laws to control offensive and dangerous industries and occupations, and laws for the extension of the service of the Insular Board of Health in the several departments, provinces, and municipalities of the Philippines; cause to be prosecuted all violations of sanitary laws; make and enforce regulations for the prevention and suppression of contagious or epidemic diseases of man or animals; abate nuisances endangering the public health; remove the cause of any special disease or mortality, and serve as the local board of health for the city of Manila. The Board has endeavored to cover the field as completely as possible, but the matter of the prevention and suppression of diseases, especially those of an epidemic character, have been given preference. In my report for last year I said:

> The matter of the prevention of disease should be viewed from two standpoints—the humanitarian and the economic. Too often the inseparable relation between good health and business prosperity is overlooked. Sentiments of human-

ity and practical business interests are equally concerned in averting preventable disease and should unite for the proper sanitary laws with respect to the willful, the indifferent, or the ignorant. Not only do the sanitary authorities require full moral support in carrying out their work but ample legal authority to enforce necessary orders and sufficient funds to pay for securing the desired improvements are essential. Modern sanitary requirements unquestionably cost money—but any expenditure that prevents disease and improves public welfare should be regarded as an investment yielding the largest returns, not only in respect to improved health and happiness but also as an insurance of industrial prosperity which is directly measurable by dollars and cents.

For the above reasons, the fact should be emphasized that in any community, and especially in these Islands, the governmental economy should begin elsewhere than in the sanitary department, and improved sanitary conditons should not be an occasion for decreased appropriations. Improvement in health conditions is permanent only while proper sanitary measures are being applied. While the tremendous money loss directly depending upon preventable disease in these Islands during the past two years is beyond calculation, it is safe to say that it would have supported a most thoroughly organized and completely equipped sanitary organization for the Philippine Archipelago for an entire generation. Sanitary efficiency is the key to the prosperity of these Islands, and thus to the success of their administration; in its absence every walk in life will be unfavorably affected and the work of every other department of the Government will be curtailed for lack of revenue. The interests of humanity, industry, and commerce thus unite to bespeak of the authorities a most liberal financial and moral support for the sanitary department.

The efficiency of a board of health depends to a great extent upon its financial resources. A board of health operating in the Philippine Islands with only advisory functions, possessed of no mandatory powers, would be of very little practical value, and, as a working organization, very defective. Municipal boards of health, as contemplated and established under Act No. 308, have demonstrated the wisdom of the law whenever and wherever they have received proper support, which may, under existing laws, be supplied or denied by municipal councils, which in many cases look with distrust, if not with disdain, upon the efforts of other authority-exercising boards. Work that is wholly in the interest of the municipality in which it is needed should be paid for by the residents of such municipality and not by the provincial or Central Government, and the law should be sufficiently mandatory in its character to compel the employment of a certain number of sanitary officials in every municipality in the Philippine Islands. If the financial condition of a municipality will not permit this to be done, funds should be supplied by the province or by the Central Government.

The whole matter of public hygiene in the Philippines as elsewhere involves a conflict of interests, and, when a municipality or the Central Government takes effective measures to prevent or suppress a disease, dissatisfaction and opposition on the part of some person or persons who are interfered with or inconvenienced by the measures employed will soon find active expression. The public interests are vague, far-away considerations usually until they become private interests—until they disturb the personal comfort or make demands upon private incomes.

Public sanitation is rapidly taking a prominent position among the exact sciences. Some of the greatest minds in the scientific world are engaged in its study and development. The pressing problem of the day, especially in the Philippine Islands, is how we can most effectively and successfully apply this science which is in advance of its practical application. It is evident that systematic health organizations are essential to satisfactory results, but the law governing them should be flexible enough to meet the varying circumstances and conditions of the communities or municipalities in which it is to operate. The jealously guarded independence of the municipalities necessarily obstructs the unity of purpose and concert of action between health boards and municipal officials which are so necessary to the accomplishment of the best results.

The old adage, "In time of peace prepare for war," is nowhere more applicable than to boards of health.

An important feature of board-of-health work is the collection and classification of vital statistics in order that they may be useful not only to the student of sanitation but also to the student of other branches of social science, who finds in them an accurate index to many characteristics of the people to whom they pertain.

BIRTH STATISTICS.

It is practically impossible to obtain reliable statistics of births in the Philippine Islands. In the city of Manila it has been very difficult to secure even incomplete returns, but the constant efforts of the Board of Health have not been without results, and it is hoped that in the next annual report the Board of Health may be ready to give accurate and uniform statistics upon this subject, without which it is impossible to determine the approximate increase in the population and many other facts of statistical interest.

With this purpose in view, the Board has adopted a uniform birth certificate printed in both Spanish and English, in which the following information is asked for: Name of child; date of birth; place of birth; living or stillborn; sex; nationality; legitimate or illegitimate; name and birthplace of father; age of father; name and birthplace of mother; age of mother; occupation of father; number of children borne by mother, including present birth; remarks; name of person reporting birth; with or without medical assistance.

It is a provision of nature that in all countries where evolution has not expended its force a certain ratio is maintained between the number of births and the number of deaths. When the birthrate is high the death rate may be expected to be high also. This statement apparently holds good in the Philippine Islands, though it is impracticable to present reliable statistics in support of it at this time.

The Filipinos are a child-producing race; perhaps no people in the world are greater opponents of "race suicide," yet over 50 per cent of children born in the city of Manila never live to see the first anniversary of their birthday. The Board of Health has begun a campaign of education against the causes which are responsible for the great sacrifice of life. Health Bulletin No. 3, published elsewhere in this report, prepared by a committee of physicians appointed by the Board of Health, has been translated into the principal dialects of the Archipelago and given general circulation among the people.

BIRTHRATE FOR THE CITY OF MANILA.

The number of births reported during the year in the city of Manila was 6,341, which gives a rate of 28.83 per thousand upon a population of 219,941. An effort has been made to obtain accurate statistics with regard to the number of children born in the city of Manila, but, owing to the fact that physicians or registered midwives are summoned in a relatively small number of cases, the returns are very incomplete. There has been a great improvement in this respect during the last eighteen months. The most reliable sources of information are the baptismal records of the Catholic churches, but since the Independent Catholic Church was organized under the leadership of Señor Aglipay the names of many children do not appear upon the records of the churches of Manila.

The births per year[1] are classified as follows: Filipinos, 6,182; Spaniards, 40; Americans, 61; all others, 58.

There are very few Chinese women in the city; the children of those Chinamen who have married Filipina women are reported as Filipinos.

A greater part of the American and other white population is composed of single men, a fact which will explain the small number of births which have occurred among the white inhabitants; however, the number of American children born in Manila during the fiscal year is 61 as compared with 47 for the last year, which apparently indicates that the number of American families in the city is increasing.

DEATH RATE.

The mortality statistics of the city of Manila are calculated upon the official census returns of 219,941, composed of 189,782 Filipinos, 22,125 Chinese, 4,389 Americans, and 3,645 foreigners.

There were 10,781 deaths among residents during the year, which gives a death rate of 49.01 per thousand. Of this number 376 were caused by cholera, 84 were caused by plague, and 25 by smallpox. The death rate by nationality per thousand was: Americans, 9.34; Filipinos, 53.72; Spaniards, 15.42; other Europeans, 16.11; Chinese, 21.85; all others, 17.88. Of the total deaths occurring in the city 5,998 were males and 4, 782 females.

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[1] Estimated number of births, 13,000.

The following table of deaths, including those of transients, will give the classification with respect to age:

Age.	Number.	Age.	Number.
Under 30 days	1,213	30 years to 40 years	879
From 30 days to 1 year of age	4,901	40 years to 50 years	599
1 year to 2 years	549	50 years to 60 years	451
2 years to 5 years	450	60 years to 70 years	306
5 years to 10 years	151	70 years to 80 years	192
10 years to 15 years	105	80 years to 90 years	96
15 years to 20 years	313	90 years to 100 years	42
20 years to 25 years	442	100 years and over	20
25 years to 30 years	604	Unknown	44

The relative death rate, by districts, in the city of Manila is as follows:

District.	Death rate per 1,000.	District.	Death rate per 1,000.
Walled City	44.40	San Miguel	47.29
Binondo	45.86	Paco	78.51
San Nicolas	29.42	Ermita	23.47
Tondo	78.14	Malate	59.60
Santa Cruz	46.20	Pandacan	64.21
Quiapo	54.17	Santa Ana	54.87
Sampaloc	64.59	Transient residents	86.22

The lowest death rate was in the district of Ermita, the residents of which are composed of a large number of white people and of the better class of natives. The districts which have a relatively large Chinese population, like San Nicolas and Binondo, show a much lower death rate than those districts densely populated by the poorer class of natives. This may be explained in part by the fact that the Chinese population consists principally of males, the greater number of whom are unmarried, thus eliminating the high infant mortality that plays such an important part in those districts populated by the poorer class of Filipinos.

DEATH OF TRANSIENTS IN THE CITY OF MANILA.

In the city of Manila there were registered 576 deaths of transients. As the transient population does not enter into the census returns, the deaths occurring in this class are listed separately. Manila is the business center of the Islands and has at all times a large transient population. The Philippine Civil Hospital and the San Juan de Dios Hospital receive many patients from the provinces. It will be observed that most of the deaths among transients are due to acute diseases, the exception being generally those who are brought to the hospitals in the last stages of chronic diseases for treatment.

PRINCIPAL CAUSES OF DEATH.

The more important causes of death in the city of Manila were as follows:

Cause of death.	Number of deaths.	Cause of death.	Number of deaths.
Convulsions of children	3,541	Affections of the stomach (cancer excepted)	75
Tuberculosis	1,153	Puerperal septicæmia	70
Acute bronchitis	549	Angina pectoris	64
Eclampsia (nonpuerperal)	534	Acute nephritis	54
Chronic diarrhea and enteritis	526	Malnutrition	52
Chronic bronchitis	489	Asthma	49
Asiatic cholera	423	Puerperal hemorrhage	49
Simple meningitis	416	Diarrhea and enteritis (2 years and over)	44
Congenital debility, icterus, and sclerema	379	Chronic rheumatism	40
Dysentery	319	General paralysis	38
Beri-beri	318	Accidental submersion	38
Intermittent fever and malarial cachexia	181	Accidental traumatism	37
Senile debility	173	Broncho-pneumonia	34
Diarrhea and enteritis (under 2 years)	162	Acute endocarditis	34
Pneumonia	147	Pulmonary congestion	33
Organic disease of the heart	126	Variola	32
Cerebral congestion and hemorrhage	114	Affections of the arteries	30
Typhoid fever (abdominal typhus)	113	Cirrhosis of the liver	26
Bright's disease	102	Leprosy	25
Tetanus	96	Anæmia	25
Plague	87	Hernias, intestinal obstructions	24
Special diseases of early infancy	76	Simple peritonitis	20

DEATHS WITHOUT MEDICAL ATTENDANCE.

Of the 11,357 deaths, excluding stillbirths, which occurred in the city of Manila during the year among residents and transients, 52 per cent are reported to have occurred without medical attendance. This is due largely to the fact that many poor people do not know that medical attendance may be obtained free of charge from the Chinese and Filipino physicians, and that prescriptions received from these physicians may be filled without cost. Besides, there is an inherent fatalism amounting to indifference that characterizes the native mind and causes it to distrust the efficiency of medicines. Scientific medication has no physiological significance to a people who believe that disease is the result of the influence of evil spirits.

In the last stage of disease, when it is evident that the patient can not live, a physician is often summoned, more to secure his signature to the death certificate, which will save his relatives or friends in securing permission to inter the body, than for the purpose of aiding the patient. All this will be changed in the course of time, for evolution is going on in the Philippines as it is in every part of the world. There are many conscientious native practitioners whose influence will eventually bring about confidence and dispel superstition. Then, and not until then, will they learn to have more faith in cleanly habits, pure water, wholesome food, and attention to the laws of nature than in the charms that they wear round their necks.

INFANT MORTALITY.

The total number of deaths, including transients, in the city of Manila for the year ended August 31, 1904, was 11,357, of which 6,029 were infants under 1 year of age.

While a high death rate among infants is common to all tropical countries, it can not be ascribed to the climatic condition alone.

In the Philippine Islands the primary cause seems to be due to lack of knowledge of the proper care and feeding of young children and to the difficulties of obtaining suitable food in cases where it is necessary to supplement the natural food by resorting to "artificial feeding." Into all the larger towns of the Archipelago the germ-infected nursing bottle has found its way, but fortunately it has not yet become an important factor among the causes of infant mortality. It is almost impossible to obtain fresh cow's milk, so the milk of the carabao and the goat is used. The poor people, especially in the provinces, can not avail themselves of ice, therefore it is impossible for them to preserve the milk in a fresh state, and it is often fed to infants after it has become sour. They know nothing of the necessity for making it conform as nearly as possible to breast milk nor of the importance of protecting it from flies.

Throughout the Philippine Islands dishes are washed in cold water, and the nursing bottle, if in use, is treated in the same way, if it is fortunate enough to be washed at all. On account of the destructive epidemics of rinderpest which have destroyed the cattle many of the goats have been sacrificed for food, so it is necessary to use condensed milk, and oftentimes, in the provinces, the milk of the cocoanut, for feeding infants. The ignorant classes do not understand why water taken from a stream in which people bathe and wash their clothes, when used to dilute milk, should cause intestinal disorders, or why an unclean cloth used in dressing the umbilical cord at the time of birth should infect the child.

The Filipino people are fond of their children, and, like the Chinese, they consider it an honor to have large families. Such a thing as an induced abortion or miscarriage is very rare. The native physicians have displayed great interest in the circulation of the Board of Health Bulletin No. 3, mentioned elsewhere, entitled "The Care of Infants." It is sincerely hoped that much good will be accomplished through its influence, but it will require time and a carefully conducted campaign of education to overcome the present conditions.

BURIALS AND DISINTERMENTS.

During the year there were 11,627 dead bodies disposed of, 7 being shipped to the United States, 3 to the provinces, 204 cremated, and 11,412 buried in the various cemeteries of Manila. One body, that of a child, stillborn, was preserved in alcohol by permission of the Board of Health.

There were 420 disinterments in the city, of which number 100 were from the Government cemeteries, 229 from the Chinese cemetery, and 91 from other cemeteries.

Besides the remains of the 229 Chinese shipped from Manila to China for final interment, the remains of several Chinamen, buried in the provinces, have been disinterred and taken back to China in accordance with the customs of these people.

The regulations of the Board of Health require that five years shall have elapsed before the disinterment of the remains of deceased persons who have been buried without being embalmed, except in special cases, when permission may be given after a burial of two years. The Commissioner of Public Health has under consideration a bill to regulate the disinterment and shipment of the dead, which has for its purpose the establishment of a uniform law for the government of this important matter.

MORGUE.

The Board of Health morgue and crematory are connected with the San Lazaro Hospital. During the year there have been received 634 bodies, 430 being disposed of by burial and 204 by cremation.

One hundred and ninety-five autopsies were held for the purpose of determining the cause of death.

INSANITARY HABITS.

The Filipino people possess many habits of cleanliness. They are fond of bathing and of the use of perfumes and cosmetics, but the lower class practice many insanitary habits which are the result of their oriental customs and their absolute lack of knowledge of the nature and cause of disease.

On account of the mildness of the climate and the simple way in which the food is prepared the greater number of houses are without facilities for heating water, therefore dishes that are used at one meal are left over until the next before any attempt is made to wash them; in the meantime flies, dogs, chickens, and such other animals as are interested in the process have done most of the work, and a few dashes of cold water do the rest. Even among the better classes and in the homes of many Americans this kind of work is left to the care of "muchachos," who display remarkable zeal in avoiding exertion whenever it is possible.

This condition may be responsible for the appearance of amebic dysentery in those cases where every apparent sanitary precaution has been observed.

Racial habits and customs which have prevailed through centuries can not be changed in a few years, but it is possible to improve them, and this has been done to some extent. This matter is largely a work of education of future generations, the success of which depends upon the instruction received in the public schools and upon example rather than upon the direct efforts of sanitary officials.

PUBLIC BATH HOUSES AND LAUNDRIES.

This is a very important subject and was discussed at some length in my annual report of last year, in which I called attention to the urgent need of the establishment of these institutions in order to meet the requirements of those who at present have no other place than the esteros to go for the purpose of bathing and for washing clothing. It is evident that bathing in polluted waters is responsible for many diseases of gastro-intestinal nature. During the epidemic of cholera the frequency of cases of this disease among laundresses and among others whose occupation brought them in contact with the waters of the esteros and rivers is conclusive that these waters are responsible for much sickness. The washing of clothing in such polluted waters is insanitary, to say the least of it, and it may be the means in many instances of conveying the germs of "dhobie itch" and other skin diseases, and even of amebic dysentery. The recommendation is renewed that there be established a sufficient number of public laundries, supplied with clean water, at which work may be safely done. It is desirable that they should be supported by municipal funds and that no charge be made for their use. These bath houses and laundries need not be expensive to be serviceable.

ESTEROS.

An effort has been made by the street department of the city and by the Board of Health to relieve the esteros of as much filth as possible, but still they are filthy.

They were formerly used as open sewers into which excreta, garbage, the waste of factories, and other impurities found their way and became a menace to the public health and offensive to sight and smell. Until the new sewer system is completed they will continue to serve a necessary purpose. The operation of the pail-conservancy system has done much to relieve the situation by permitting the removal of many privies located over esteros and the installation in their stead of pails which could be kept in a reasonably sanitary condition, and also by the use of septic tanks placed so as to intercept the contents of private drains, thus relieving the water of a considerable portion of impurities before it reached the esteros. To prevent the discharge into the esteros of waste from manufacturing establishments at this time would practically break up many of these concerns. To remove all privies and closets emptying into esteros in the absence of suitable provision for disposal of the excreta would result in a more general soil pollution which would be more dangerous to public health than the additional amount of noxious material dissolved in the already polluted waters of the esteros, and for this reason the Board of Health has exercised more leniency than a hasty consideration of the subject would seem to justify. In the season of rains these esteros are flushed by the large volume of storm water which surges through them on its way to the Pasig River, by which it is conducted into the bay. During the dry season the conditions are more serious, as practically no clean water ever finds its way into them. The tides exert very little beneficial influence on account of the length, narrowness, and tortuous courses of the esteros. The rising tide forces the foul water remaining after ebb tide upstream toward the ramifications. As stated in my report for last year, the falling tide sweeps out the cleaner water which has been brought in from the river, and the filthy water from the upper part of the stream follows down through the business portion of the city, attended by all its disagreeable odors and unhealthful emanations. About the time that this foul water begins to escape into the river the tide turns and the contaminated water is again forced into the esteros without having had an opportunity to pass out. This condition of affairs continues day after day, the water simply changing its position from one part of the estero to the other without compensating dilution to offset the constantly increasing pollution. As the dry season advances its condition becomes worse and is relieved only by the return of the wet season.

These esteros are of considerable commercial importance, as they afford ready access by water to all parts of the city. They afford, also, employment to a great number of poor people who are engaged in boating and rafting. It would be a great mistake to fill them in. They should be improved and deprived of their insanitary qualities in order that they may be a blessing and an ornament to the city. Dr. E. L. Munson, captain and assistant surgeon, United States Army, who was formerly on duty with the Bureau as Assistant to the Commissioner of Public Health, devised a plan which has commended itself to all engineers to whom it has been submitted. This plan, suggested by Dr. Munson, briefly, is to so control the tidal action in the esteros as to cause a constant movement of the water therein toward the lower portion of the Pasig River, with discharge into the same on the ebbing tide, while the esteros fill up during the rising tide with water drawn from relatively clean sources. This is to be accomplished by outflow gates at or near the mouths of esteros, and inflow gates near their heads, thus preventing any escape of the clean water except from the river as the tide rises. Three short inflow flushing canals would have to be excavated to perfect the operation of the system throughout the city. The permanent improvement of the esteros would necessitate the construction of valve gates of solid construction in order to insure the purifying movement of water through the esteros with each tide. The esteros should be strengthened whenever practicable, walled up with stone on the sides to a proper width, and dredged to a uniform depth of at least 4 feet at low tide, so that mud banks would never be exposed.

These esteros should be kept free from the obstruction of stored logs and bamboo which is now permitted. An ordinance has been prepared by the Board of Health for this purpose and forwarded to the Municipal Board.

LOW LANDS.

Under authority of Act No. 1150 the Board of Health has drafted a suitable ordinance for the purpose of causing owners or agents of such property to begin the work of filling in, so that the work may be carried on gradually without inflicting financial hardships. The ordinance as drafted reads as follows:

WATER FLOW NOT TO BE OBSTRUCTED.

No person shall deposit on any street, alley, private or public place in the limits of the city, or upon any paved street now or hereafter constructed, any dirt, brick, or other material in such manner as to obstruct the free water flow of water along any ditch or gutter.

OFFENSIVE SUBSTANCES NOT TO BE USED.

No animal or vegetable substance or any street sweepings, muck, or silt, or dirt gathered in cleaning yards, buildings, esteros, docks, or slips, or waste of mills or factories, or any materials which are offensive or tend by decay to become putrid or to render the atmosphere impure or unwholesome, shall be deposited or used to fill up or raise the surface or level of any lot, grounds, dock, wharf, or pier in or adjacent to the built-up portions of the city, or any ground filled for the purpose of building thereon, unless pursuant to a special permit from the City Engineer and approved by the Commissioner of Public Health.

BUILDINGS OR INSANITARY SITES NOT TO BE OCCUPIED.

No building or structure shall be used as a residence or place for human habitation or abode which is situated upon land which has been made by filling in with dangerous and insanitary refuse, garbage, or other substance which may have an unfavorable effect upon the public health.

Where any premises within the limits of the city are composed of low land, or so excavated or walled, diked, or dammed as to admit or cause the formation on the surface thereof of pools, ponds, or stagnant or other foul waters which are a nuisance and a menace to the public health, the City Engineer may call upon and require the owner of any premises whereon such pools may exist to fill up the same with good, clean earth or other approved material to the level of the surrounding ground, or to drain off such pools by means of surface drains into any channel with which such surface drains may lawfully communicate, or to cut or breach any retaining walls, dike, or dam so that such retained water may have free escape.

PROCEDURE.

Whenever it shall come to the knowledge of the Board of Health that any low land, marsh, or stagnant pool or pond in the city of Manila is in an insanitary condition and constitutes a serious menace to the public health it shall report the facts to the City Engineer, who shall take steps to cause the said low lands, marshes, stagnant pools or ponds to be cleansed, drained, or filled in and the insanitary conditions removed: *Provided*, That no order for

the cleansing, drainage, or filling in of such low lands, marshes, stagnant pools or ponds involving a cost of more than three hundred pesos, Philippine currency, shall be effective without the approval of the Secretary of the Interior, as provided for in Act Numbered Eleven hundred and fifty.

MOSQUITOES.

Mosquitoes find favorable breeding places in the sunken lands and esteros of the city. It is of the utmost importance that active steps be taken to minimize their number by the use of every means known to science.

Fortunately the mosquitoes which carry the infection of malaria are relatively few. The prevailing species found in Manila and along the coast lands belong to the Stegomyia variety, which have been shown to be the agents of transmission of yellow fever in Cuba. The infection of yellow fever has never been introduced into the Philippine Islands. It is true that infected mosquitoes live several months, but it is probable that they can not survive a journey around Cape Horn from the West Indies or Brazil. It is also probable that they would die before they could be brought in on a sailing vessel from the west coast of Central or South America. The immunity of the Philippines may be due in some measure to the fact that very little direct trade has been carried on between the Orient and those coasts where yellow fever is endemo-epidemic.

The new Panama Canal, affording as it will more rapid communication between infected countries and the East, may complicate the sanitary problem in the Philippines. The situation at least will be important enough to justify the fumigation of every vessel that passes through the canal before it is allowed to proceed on its journey, and the enforcement of such active prophylactic measures as may be indicated by the probable danger of transplanting the infection into the Philippine Islands.

The Board of Health has begun active measures to lessen the number of these annoying and disease-bearing insects in the city of Manila.

MALARIAL INFECTION.

Very fortunately, diseases caused by malarial infection are not as common or as dangerous in the Philippines generally as in many parts of the United States. The mosquito, now recognized as the agent for the transmission of malaria, apparently does not find as favorable environment for development as it does in many other tropical countries and in some portions of the United States, due perhaps to the fact that the greater part of the population live along or near the seacoast. In the interior there are many malarial districts where the malaria-bearing mosquitoes are found in large numbers, this being especially true of the southern islands, where the disease is of a severe type. The natives know the value of quinine and laxatives in these diseases. In Manila for the year ended August 31, 1904, there were 181 deaths recorded as due to malarial causes.

DYSENTERY.

This is the most dreaded and one of the most dangerous of tropical diseases. It is clearly established, at least so far as Manila is concerned, that the disease is mainly water borne. Repeated examination of the city water reveals the presence of amebæ. In its relation to the present water supply, the question has been thoroughly studied by Mr. Desmond Fitzgerald, of Boston, the eminent sewer and water expert, who has been in Manila in connection with a new system of waterworks. Mr. Fitzgerald was taken sick with the disease three days after his arrival in the city. This fact led him to give more attention to the subject than he probably would have given if he had not had this experience. It is his opinion that the new water system, with its improved facilities for purification, will exert a favorable effect toward lessening the number of cases of this dangerous disease.

The mind of the Filipino servant is not sufficiently enlightened to enable him to recognize the danger of drinking water that has not been sterilized, and the necessity for boiling the water used for toilet purposes is still more unthinkable to him. Even when, at the price of eternal vigilance, he is made to do these things, it is safe to say that he uses nonsterile water for washing the glasses in which the water is served. Those who have given the subject careful study hold the opinion that amebæ may be introduced into the system in this way and by the use of the water from the shower bath. This will explain the origin of those cases which have occurred in persons who have exercised the most watchful care in other respects.

During the year there were 319 deaths from this disease in the city of Manila. Many cases yield to quinine enemata, while in others it is necessary to go to America or Japan in order to obtain the benefits of a cooler and more healthful climate.

BERI-BERI.

Beri-beri is one of the least feared, and, next to tuberculosis, among the Filipinos and Chinese, particularly the poorer classes, one of the most dangerous diseases in the Philippines.

White people are not very susceptible, though a number of American beri-beri patients have been treated in the Civil Hospital. The death records of Manila show that 318 persons have died in the city of Manila of this disease during the last year. The greatest number of deaths takes place in the provincial jails.

Whatever may be the true etiology of the disease, it is certain that a diet deficient in nitrogen is an important predisposing cause, though cases have been known to occur in persons where no predisposing factors could be determined.

Sunlight, fresh air, cleanliness, and a nitrogenous diet are enemies of the disease and in many cases exert a curative effect.

LEPROSY.

The number of lepers in the Philippine Islands has been variously estimated from 10,000 to 30,000. It is probable that there are not more than 5,000. This office has a record of 3,632. At present only 457 are cared for in leper institutions—225 in San Lazaro Hospital, Manila; 209 in the San Lazaro leper hospital at Cebu, and 23 in the Palestina leper colony, near Nueva Caceres, in the Province of Ambos Camarines.

The type of leprosy prevalent in the Philippine Islands is relatively mild as compared to the character of the disease in many other countries. Of the 227 lepers who have occupied San Lazaro Hospital in the city of Manila during the year only 26 have died.

The Board of Health has submitted a bill for an act entitled "An act providing for the segregation, treatment, and care of lepers in the Philippine Islands," the principal features of which are set forth in eight sections as follows:

SECTION 1. There shall be established on Culion Island, under the direction and control of the Board of Health for the Philippine Islands, a colony for the segregation, treatment, and care of all persons in the Philippine Islands who are now afflicted with or may hereafter become afflicted with leprosy.

SEC. 2. The Board of Health for the Philippine Islands is hereby authorized to take possession of Culion Island, and such other islands as may hereafter be reserved or set apart for that purpose by the Philippine Commission, for the establishment of a colony or colonies for the separation and care of the lepers of the Archipelago, and, subject to the approval of the Secretary of the Interior, to make, promulgate, and enforce such rules and regulations as may be necessary for the efficient control and management of such colony or colonies; and all said rules and regulations shall have the same force and effect as statute laws enacted by the Philippine Commission.

SEC. 3. The officer in charge of the leper colony or leper colonies shall be designated as the governor of the leper colony or colonies of the Philippine Islands, and he shall have in addition to his other powers those of a justice of the peace.

SEC. 4. The Board of Health for the Philippine Islands, through its proper agents, is authorized to place and confine in Culion leper colony, or in such other colonies as may hereafter be established in the Archipelago, all persons resident of the Philippine Islands who are found to be suffering with leprosy and all persons who may hereafter become afflicted with that disease: *Provided*, That no person shall be transported to the leper colony until examined and reported in writing to the Commissioner of Public Health or his duly appointed representative to be a leper, by a board of three physicians duly qualified under the provisions of Act Numbered Three hundred and ten, regulating the practice of medicine and surgery in the Philippine Islands, and authorized to make such examination by the Commissioner of Public Health: *And provided further*, That every person who is received at the Culion leper colony, or such other colony as may be established hereafter, shall again be thoroughly examined by the medical officer in charge before final commitment as a leper.

SEC. 5. It shall be unlawful for any person who is not a leper to land at or visit any leper colony unless he be a member of the Board of Health for the Philippine Islands or a person who has duly received written permission from

the Board of Health for the Philippine Islands or its proper agents. Any unauthorized person found within the limits of a leper colony shall be arrested and delivered to the proper authorities.

SEC. 6. A reasonable amount of labor may be required from all indigent lepers confined in such colony who are physically and mentally able to labor: *Provided*, That no person under twelve years of age or over sixty years of age shall be required to perform such labor.

SEC. 7. There shall be established and maintained in connection with the leper colony a branch laboratory for the investigation, study, and treatment of leprosy, under the direction of the Superintendent of the Bureau of Government Laboratories.

SEC. 8. All leprous patients confined in colonies by the Board of Health for the Philippine Islands or its proper agents who are nonsupporting shall be fed, clothed, and maintained at the expense of the Insular Government unless the relatives of such patients or others voluntarily contribute to their support.

The work on the leper colony at Culion is progressing satisfactorily, and it is hoped within a short time the work of transferring the lepers to this colony will be begun. The Government has purchased the property of the natives of Culion in order that the lepers might have homes.

Dr. Charles F. de Mey, who has been selected to fill the position of superintendent, has had considerable experience in the Tropics, and has the advantage of being able to speak Spanish well, besides having a valuable acquaintance with the customs and peoples of the Orient.

The new colony will be a comfortable home where these unfortunate people may live as happily as it is possible for lepers to live.

The formal opening of the Culion leper colony will mark the beginning of a new order of things in the treatment of these unfortunate people, who, notwithstanding their condition, have certain inalienable rights that society must respect.

SMALLPOX AND VACCINATION.

During the year ended August 31, 1904, there were 73 cases of smallpox in Manila, with 32 deaths, as shown by the following table:

Month and year.	Americans.		Filipinos.		Foreigners.		Chinese.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
1903.								
September	1	1	1			1		
October			1					
November	2	1	1	1				
December	2	3	2					
1904.								
January	2							
February								
March	1		7	1			2	
April	2		14	5	2	1		1
May	10	2	10	6				
June	1	2	5	2				
July			2	1	1			
August			4	4				
Total	21	9	47	20	3	2	2	1

There has been no deaths among those who have been protected by vaccination.

Several provinces have reported outbreaks of smallpox, but nowhere has the disease got beyond the control of the health authorities. The Board of Health has kept a force of vaccinators in every province of the Archipelago. In my report for last year I called attention to the fact that from November 3, 1894, to October 25, 1898, the latter being the date on which the administration of the Government was taken by the Americans, a total of but 9,136 vaccinations had been made in Manila, while in the months of November and December, 1898, there were 10,477 vaccinations performed in the city of Manila, or 1,341 more people vaccinated in the first two months of the American administration than during the last five years of the Spanish Government.

The number of vaccinations performed in the city of Manila during each year of the American occupation is as follows:

1898 (two months)	10,477
1899	103,931
1900	60,592
1901	73,891
1902	133,803
1903	148,714
1904	151,463

The work of vaccination is carried on under the direction of Señor Saturnino Espejo, chief vaccinator for the Philippine Islands. Señor Espejo has occupied this position for many years, having been employed under the Spanish Government. There have been no serious results, so far as known, from any vaccination, a fact which testifies to the careful manner in which the vaccine is prepared at the laboratory and to the precautions observed in performing the operation. All operators are carefully trained by Señor Espejo before they are sent out.

The vaccination work was carefully systemized by Dr. Edward L. Munson, captain and assistant surgeon, United States Army. Captain Munson's plans for conducting the work are so comprehensive and efficient, involving as they do a scheme to vaccinate a nation of over 7,000,000 people, it is thought advisable to publish them in full, that for the city of Manila being given first:

CIRCULAR ON VACCINATION FOR THE CITY OF MANILA.

The following information is published for the guidance of all concerned, and will hereafter govern the work of vaccination and the maintenance of records and rendering of reports thereon for the city of Manila:

THE SUPERVISING VACCINATOR.

The supervising vaccinator will be held responsible for the efficiency and attention to duty of vaccinators and persons assigned as inspectors of vaccinations. He will see that all vaccinators render to him daily reports on the

prescribed form and will forward to the Commissioner of Public Health consolidated reports, as elsewhere specified, based thereon. He will personally inspect or cause to be inspected the work of the vaccinators as to the success of vaccinations done by them, and for this purpose he is entitled to receive such assistance in the work of inspection of vaccinations from the sanitary inspectors of his districts as may be practicable. He will be responsible for the proper instruction of persons serving on probation with a view to appointment as vaccinators.

ASSIGNMENT OF VACCINATORS.

A total of fifteen vaccinators is authorized for the performance of vaccination work in the city of Manila. These will be distributed on the basis of the population of the sanitary districts to which assigned. Ordinarily the assignment of vaccinators to sanitary stations will be as follows: Station A, 3; Station C, 2; Station F, 1; Station G, 3; Station I, 2; Station J, 1; Station L, 2. The remaining vaccinator will be assigned as assistant to the supervising vaccinator for the purpose of assisting in the inspection of vaccinations and for detail in emergency as vaccinator. Where two or more vaccinators are on duty in a district one will be placed in charge of the others by the supervising vaccinator and will be responsible to the latter for the efficiency of his subordinates.

With the approval of the Commissioner of Public Health, on request for such assistance district sanitary inspectors may be required to act as inspectors of vaccinations within their sanitary districts without undue interference with their other duties.

The movements of vaccinators within a sanitary district will be directed by the district medical inspector after consultation with the supervising vaccinator.

Ordinarily the vaccination work in a district will be prosecuted systematically—house by house, block by block, and street by street. In this way less time will be lost in going from house to house, the general whereabouts of the vaccinators will be known at all times, and their work can be more satisfactorily supervised. Where practicable, two vaccinators should ordinarily work together.

When a case of smallpox occurs a sufficient number of vaccinators will be immediately withdrawn from other work and sent to vaccinate all the other occupants of the house in which such case occurred and the other persons who have presumably been exposed to the infection. Every effort will be made to seek out and vaccinate these latter persons as soon as possible, and recent successful vaccination will not be a bar to their revaccination.

PERSONS UNDER INSTRUCTION.

Persons of good character and ability, desirous of securing instruction in vaccination work for the purpose of fitting themselves for appointment to such positions as vaccinators as may occur in Manila or the provinces, and who are willing to serve without pay, may be assigned as assistant vaccinators to sanitary districts by the supervising vaccinator. While so serving they will be under the immediate direction of the vaccinator in charge, who will be responsible for their good conduct and proper instruction. Such persons, under the immediate supervision of the vaccinator in charge, may perform vaccinations and assist in the preparation of records. Vaccinations done by such persons should be credited on the records to the vaccinator in charge of their instruction.

The supervising vaccinator will keep a list of persons who have been properly trained, as above, during a period of not less than fifteen days and whose character and habits render them suitable persons for appointment as vaccinators. On request from this office he will furnish the names and addresses of those recommended by him for such appointment. As far as practicable appointments will be made as vaccinators only from persons trained and recommended as above.

HOURS OF DUTY.

The hours of duty for vaccinators and inspectors of vaccinations are from 8 to 12 in the morning and from 2 to 5 in the afternoon, and will be rigorously adhered to. Persons under instruction in vaccination work will observe the same hours as vaccinators.

Sanitary inspectors detailed as inspectors of vaccination will observe such hours in respect to vaccination work as the district medical inspector, after conference with the supervising vaccinator, may direct.

AMOUNT OF WORK REQUIRED.

An efficient vaccinator should average not less than forty vaccinations per day, exclusive of Sundays and legal holidays.

Careful record of the number of vaccinations performed by each vaccinator will be kept by the supervising vaccinator, and report will be made by him in respect to any vaccinator who fails to attain the above daily average in any calendar month. In case explanation satisfactory to this office is not made by the vaccinator concerned he will be discharged for inefficiency.

In case a vaccinator aggregates fifty vaccinations or over daily for a period of two months or over the supervising vaccinator will call attention to his superior efficiency in a letter to the Commissioner of Public Health.

COURTESY BY EMPLOYEES.

All vaccinators and inspectors of vaccinations will bear in mind the delicate nature of their duties, and will treat the persons to be vaccinated or inspected with proper courtesy and consideration. Children will be treated with especial gentleness.

ENFORCEMENT OF VACCINATION.

Vaccinators are prohibited from using force in accomplishing vaccination. If vaccination is still refused after the provisions and penalties of the act of the Commission and the city ordinance making vaccination compulsory have been explained to the person so refusing, a written report of such refusal will be rendered by the vaccinator to the district medical inspector, who will investigate the case. If vaccination is required and is still refused the district medical inspector will forward a written report to this office, stating the facts and giving the names and addresses of witnesses, so that the matter may be taken to the courts.

UNIFORM AND APPEARANCE.

All employees of the vaccination service will wear the prescribed uniform while on duty. They will pay special attention to the neatness of person and clothing. Bearing in mind the medical nature of their work, they will at all times give great care to the cleanliness of the hands and finger nails and to the avoidance of infection of the vaccination wounds.

PERFORMANCE OF VACCINATION.

Vaccination will be performed in the following manner:

(1) A site at the outer part of the left arm at the junction of the middle and upper thirds will usually be selected for vaccination.

(2) The skin of the region in which vaccination is to be performed will be thoroughly washed with a pledget of cotton wet in a 5 per cent carbolic-acid solution.

(3) The carbolic-acid solution will be removed and the skin of the site at which vaccination is to be performed will be cleaned by thoroughly wiping with a piece of cotton wet with alcohol. If the carbolic-acid solution is not removed before the performance of vaccination it is likely to render the virus inert and interfere with the success of the operation.

(4) After the alcohol has evaporated and the skin of the site is dry the latter is put on the stretch by the left hand of the vaccinator.

(5) The lancet of the vaccinator will be sterilized by passing it through the flame of the alcohol lamp.

(6) A small quantity of vaccine virus is placed on the skin at the site of the proposed vaccination, taking up the virus with the point of the lancet.

(7) An abrasion will be made in the skin at the site of the proposed vaccination, about one-half of an inch long and one-third of an inch wide, working the vaccine virus well in during the operation. The abrasion will be made by a number of scratches, but care must be taken that very little blood is drawn. The proper abrasion is one in which the exudate is a little bloody serum only.

(8) The abrasion is allowed to dry for two or three minutes.

(9) Three or four turns of a sterilized bandage are placed around the arm over the wound and fastened with a pin. This bandage must be sufficiently tight so as not to slip, but not so tight as to cause annoyance.

(10) The person vaccinated must be warned not to remove the bandage for at least twenty-four hours. If it slips it must be replaced or the abrasion covered with a piece of clean cloth. The abrasion should not be wet for two days, after which nothing but clean water should be used thereon. The application at any time of poultices or any material whatsoever except clean boiled water or clean wet cloths should be strongly warned against. If the vaccination takes and the arm becomes sore it should be dressed only with clean cloths wet with clean boiled water and changed twice a day.

(11) The person vaccinated will be informed that the vaccination will be inspected in about a week to determine whether it has been successful or not.

PERSONS TO BE VACCINATED.

Until June 30, 1904, vaccinators will make special effort to search out and vaccinate such persons as were not vaccinated during the calendar year 1903.

The birth records of the districts will be examined from time to time, at least once every three months, and the infants whose births are reported thereon will be sought out and vaccinated in accordance with the provisions of Act No. 309.

After finishing the work of vaccination of unvaccinated persons or those not recently vaccinated the revaccination of the general population of the city will be resumed.

Persons visiting the city as transients will be vaccinated, unless presenting evidence of successful vaccination.

CERTIFICATES OF VACCINATION BY PHYSICIANS.

The card certificates of the United States Public Health and Marine-Hospital Service, a coördinate branch of the Government, showing that the holder has been successfully vaccinated, will be respected by vaccinators, and the same applies to the certificates of successful vaccination signed by licensed medical practitioners. Such certificates will not be taken up nor will the holder be ordinarily subjected to vaccination within two years after the date of their issue. Record must be made, however, of all the facts in the case required to be entered on the district vaccination records, and the entry will be made therein that vaccination of the person named was not made because of the certification of successful vaccination by a surgeon of the United States Public Health and Marine-Hospital Service or by a licensed medical practitioner. In such cases the red card (performance of vaccination) will be filled out and filed in the card index of the sanitary station. Certificates that vaccination has been performed, but not certifying to the success of the operation, issued by the above persons, will not be taken up, but under such circumstances the holders of the same will be treated as if vaccination in their case had not been performed.

VACCINE VIRUS.

Vaccine virus will be obtained as required for vaccinators by the supervising vaccinator from the vaccination division of the office of the Board of Health. Ordinarily not more than a three days' supply will be issued at any one time, to prevent possible deterioration of the virus before use.

Vaccinators are warned that vaccine virus may be rendered inert by exposure for an hour or so to direct sunlight. It will be kept out of sunlight and in as cool a place as possible when not required.

If vaccination is properly performed only a small amount of vaccine virus is required to produce successful results. Vaccine virus is expensive, and due economy must be exercised in its use.

Should any employee of the vaccination service have reason to believe that the vaccine virus being used is inert or not of good quality he will at once report the fact to the supervising vaccinator.

VACCINATORS' SUPPLIES.

All supplies required in the work of vaccination, such as carbolic acid, alcohol, cotton, bandages, lamps, and lancets, will be secured from the vaccinating division of the office of the Board of Health by the supervising vaccinator a sufficient time in advance. Ordinarily a supply in excess of the needs of two weeks will not be issued. Due economy in the use of supplies is required.

OFFICE AND CLERICAL WORK.

Vaccinators assigned to duty in a sanitary district will be furnished proper desk accommodations and writing facilities in the sanitary stations of such districts, and inspectors of vaccinations or persons detailed as such will be given suitable facilities to enable them to properly perform their required clerical work.

All records pertaining to vaccinations performed in a sanitary district are part of the official records of the sanitary station of that district, and the chief sanitary inspector of that district will be responsible for their proper care and preservation. All clerical work connected with the maintenance of district vaccination records will be performed by the vaccinators, inspectors of vaccinations, or persons detailed as such.

The consolidated report of vaccinations to be rendered daily from each sanitary station to the supervising vaccinator will be prepared by the vaccinator placed in charge of the vaccinators of the district.

The consolidated report of the inspections of vaccinations to be rendered daily to the supervising vaccinator will be prepared by the persons performing such work of inspection.

STATION VACCINATION RECORDS.

The station vaccination records will be kept on loose blank form sheets, which will be fastened in a suitable binder to form permanent records. These form sheets will be folded in the center to form double pages, and these pages will be numbered consecutively as entered upon. As many loose form sheets will be numbered, filled in, stitched together, and placed in the binder from time to time as may be required during the progress of the vaccination work. No sheets will be stitched together on which data required from both vaccinators and inspectors of vaccinations have not been entered.

The blank form sheets will show column spaces on each double page for the desired information, the entry for each person being continued on the same line across both pages. The following information will be entered on the blank form sheets:

Column 1: The consecutive numbers assigned to the person vaccinated.
Column 2: The names of the persons vaccinated.
Column 3: The addresses, street and number, of the persons vaccinated.
Column 4: The date of performance of vaccination.
Column 5: Evidence, or not, of previous successful vaccination.
Column 6: The age of the person vaccinated, whether adult or child.
Column 7: The sex of the person vaccinated.
Column 8: The date of inspection of the vaccination.
Column 9: The result of the recent vaccination, as to whether successful or not.

Column 10: Remarks. In this column will be noted any complications of the vaccinations, remarks as to the apparent quality of the vaccine virus, the efficiency of the vaccinator, etc. If the person vaccinated can not subsequently be found for inspection an entry will be made in the column giving such fact as the reason why inspection of the vaccination was not made.

The signature of the person or persons performing the vaccinations will be entered on each form sheet in the space left therefor under columns 1 to 9, inclusive. Where two or more vaccinators sign the same sheet each will place his initials in the number space opposite the name of the persons vaccinated by him, so that his work may be properly credited.

The inspector of vaccination or person acting as such will sign each form sheet in the space left for such signature under columns 8, 9, and 10.

CERTIFICATE OF PERFORMANCE OF VACCINATION.

After accomplishing vaccination, vaccinators will immediately sign and issue to the person vaccinated a red card of the prescribed form. This card will show the sanitary station from which issued and a number corresponding to the entry in the vaccination record of such sanitary station pertaining to the person so vaccinated. It will also give the name and address, sex and age of the person so vaccinated, and will give the date on which vaccination was performed.

This card will be retained by the person vaccinated until after examination by an inspector of vaccination, by whom it will be taken up and a white or blue card, as required, issued in lieu thereof. The red card will later be compared at the district station with the corresponding entry in the district vaccination record, after which the card will be filed in the station for possible future reference by name. Filing will be done in alphabetical sequence on the basis of the family name. By referring to the name card and ascertaining the record number therefrom the data in respect to any person vaccinated and inspected can thus readily be looked up subsequently in the district vaccination record.

CONSOLIDATED REPORTS OF VACCINATION.

A consolidated report of vaccinations performed in each sanitary district will be compiled from the vaccination records and forwarded daily by the vaccinator in charge to the supervising vaccinator. This report is required so that the latter may make arrangements for the inspection, at the proper time, of the vaccinations so performed. This report will be made upon a prescribed blank form, and will contain the following information:

(1) Total number of persons vaccinated in the district.

(2) Number of persons vaccinated showing evidence of previous successful vaccination.

(3) Number of persons vaccinated not showing evidence of previous successful vaccination.

(4) Total number of adults vaccinated.

(5) Total number of children vaccinated.

(6) Total number of males vaccinated.

(7) Total number of females vaccinated.

(8) Total number of persons vaccinated by each vaccinator, giving the name of the latter.

The above report will be forwarded daily, covering the previous twenty-four hours ending at 5 o'clock in the afternoon, except in the case of Sundays and legal holidays. The supervising vaccinator will keep accurate note of these daily reports, and if they are not received within twenty-four hours after becoming due they will be called for by him.

The above daily vaccination reports from the several sanitary districts will be consolidated for the city by the supervising vaccinator on each Monday for the previous calendar week and forwarded to the Commissioner of Public Health.

The daily vaccination reports from the several sanitary districts will also be consolidated for the city for each calendar month by the supervising vaccinator and forwarded to the Commissioner of Public Health on or before the 5th of the following month.

All these consolidated vaccination reports will be rendered on the same blank forms.

RECORDS OF INSPECTION OF VACCINATIONS.

All vaccinations performed will be inspected by a vaccination inspector or a sanitary inspector acting as such between the sixth and tenth day after the performance of vaccination. Record will be made as to the results attained on the prescribed forms. For this purpose the necessary sheet forms showing the vaccinations performed may be temporarily removed from the vaccination records of the district sanitary station by authorized inspectors for the purpose of securing the names and addresses of the persons to be inspected. A memorandum receipt for the loose form sheets so removed will be left by the inspector and taken up by him on return of the same.

Particular care will be observed in the differentiation between true vaccine and inflammations due to infection with pyogenic germs, and in making proper reports thereon. In the column for "remarks" on the blank vaccination record form brief entry will be made of the occurrence of any such infections, so that proper adherence by vaccinators to measures of cleanliness and antisepsis may be determined from the records.

In case of serious illness or death following vaccination and apparently in any way related thereto the inspector of vaccinations cognizant thereof will immediately report the fact in writing to the district medical inspector, who, with the supervising vaccinator, will make a careful investigation of the matter and forward a full written report thereon to the Commissioner of Public Health.

CERTIFICATE OF UNSUCCESSFUL VACCINATION.

If on examination by an inspector of vaccinations the vaccination performed is found to have been unsuccessful, the inspector will issue a white card signed by him, stating this fact and showing the sanitary station from which issued, the entry number of the station vaccination record, the name, address, sex, and age of the person vaccinated, and the date on which the unsuccessful vaccination was performed.

This card will be retained by the person to whom issued, but it is not to be construed as authority for refusal by the holder to submit to revaccination should such be subsequently required.

CERTIFICATE OF SUCCESSFUL VACCINATION.

Where the inspector of vaccinations finds that a vaccination has been successful, he will issue a blue card stating this fact and showing the sanitary station from which issued, the entry number of the station vaccination record, the name, address, sex, and age of the person vaccinated, and the date on which the vaccination was performed and the signature of the inspector of vaccinations.

This card will be retained by the person vaccinated and will be accepted as exempting such person from further vaccination for the period of two years from the date of the successful vaccination, provided the holder is not found to have been in contact with smallpox during this period.

REPORT OF INSPECTION OF VACCINATIONS.

A consolidated report of inspections of vaccinations performed in each sanitary district will be compiled from the vaccination records and forwarded daily by the persons making such inspections to the supervising vaccinator, the later making out a similar summary in respect to inspections of vaccinations made by him. This report is required so that the supervising vaccinator may make the consolidated reports required regarding inspection of vaccinations. This report will be made on a prescribed blank form and will contain the following information:

(1) Total number of persons inspected as to success of vaccination; (2) total vaccinations found to be successful; (3) total vaccinations found to be unsuccessful; (4) number of persons inspected who have been previously successfully vaccinated; (5) total vaccinations successful in persons previously successfully vaccinated; (6) total vaccinations unsuccessful in persons previously successfully vaccinated; (7) total adults successfully vaccinated; (8) total children successfully vaccinated.

The above report will be forwarded daily, covering the previous twenty-four hours ending at 5 o'clock p. m., except in the case of Sundays and legal holidays. The supervising vaccinator will keep accurate note of these daily reports, and if any are not received within twenty-four hours after becoming due they will be called for by him.

The above daily reports of inspections of vaccinations from the several sanitary districts will be consolidated for the city by the supervising vaccinator on each Monday for the previous calendar week and forwarded to the Commissioner of Public Health.

These daily reports from the several sanitary districts will also be consolidated for the city for each calendar month by the supervising vaccinator and forwarded to the Commissioner of Public Health on or before the 5th of the following month.

All these consolidated vaccination reports will be rendered on the same blank forms.

PROVINCIAL VACCINATIONS.

During the year there have been 1,430,735 units of vaccine virus sent to the provinces.

This office is not yet in possession of accurate data as to the exact number of vaccinations that have been made in the provinces, though it will not fall short of the number of units of vaccine virus distributed.

The greatest difficulty encountered in the provincial vaccinations is the lack of transportation facilities, which seriously impairs the efficiency of the service, especially with respect to the movement of vaccinators and the transportation of vaccine virus, which is sometimes delayed so long that it is worthless when it reaches its destination. To overcome this difficulty the Board of Health has made special ice boxes for the shipment of vaccine virus.

Formerly the natives were prejudiced against vaccination, and there were instances where it was thought best to temporarily discontinue the work rather than excite their active opposition; however, since the plan of sending out intelligent, neatly uniformed men from Manila, and the introduction of the systematic methods devised by Captain Munson, this opposition is rapidly disappearing. The circular prepared by Captain Munson, clearly defining the relations of the Insular vaccinators to the provincial and municipal authorities, is as follows:

CIRCULAR OF INSTRUCTIONS FOR THE CONDUCTION OF THE PROVINCIAL VACCINATION SERVICE IN THE PHILIPPINE ISLANDS.

The following is published for the information and guidance of all concerned, and will hereafter govern the work of vaccination and the maintenance of records and rendering of reports thereon throughout the Philippine Islands, except the city of Manila, in which such work will be performed in accordance with the provisions of Circular C 18, dated March 1, 1904:

(1) *Chief of vaccination service.*—A chief of the vaccination service for the Philippine Islands, detailed from the physicians under the Board of Health, will be in charge of and responsible for the general service of vaccination and the preventive inoculation of human beings, and for the sale, distribution, and supply of vaccine virus and prophylactic serums in the city of Manila and throughout the Philippine Islands, under the provisions of law, under the direction of the Commissioner of Public Health. For this purpose he will be furnished office accommodations for himself and assistants in connection with the offices of the Board of Health.

(2) *Chief supervising vaccinator for the Philippine Islands.*—A chief supervising vaccinator for the Philippine Islands will be responsible for the instruction and efficiency of all inspectors of vaccination and of vaccinators and for the proper preparation and maintenance of all records and statistics relating to vaccination in the city of Manila and in the provinces, under the chief of the vaccination service for the Philippine Islands. He will make recommendations as to assignments to duty of the inspectors of vaccination and of vaccinators, keeping a roster for that purpose, and will personally make such inspections to direct

and determine the efficiency of his subordinates in Manila and in the provinces as may be required by the Commissioner of Public Health. He will have the necessary clerical assistance for maintaining the records and compiling the statistics of his office.

(3) *Vaccine supply officer.*—A chief sanitary inspector or clerk detailed in the office of the chief of the vaccination service for the Philippine Islands will, in addition to his other duties, have direct charge, under the chief of the vaccination service, of the procuring, shipping, and sale of vaccine virus and prophylactic serums, the issue of vaccinators' supplies, and the preparation and maintenance of all papers, invoices, bills, receipts, and records relating thereto.

(4) *Assignments to duty of employees of vaccination service.*—Inspectors of vaccination and vaccinators will do service in any place in the provinces as required. It is expected that all provincial employees will perform their fair share of work in the more remote localities, and a roster will be maintained under which employees who have served a reasonable period in such localities will be transferred to more desirable stations, as opportunity offers.

This office will not authorize the issue of return transportation to Manila of employees of the vaccination service who have not served a reasonable time in the provinces unless there are unusual and valid reasons for such return at the public expense.

(5) *Relations of employees to presidents of provincial boards of health.*—The president of a provincial board of health will have control of the provincial inspectors of vaccination and vaccinators assigned to his province, and will detail them to duty from time to time at such stations as may be necessary, subject to the exception stated in the following section. While serving in his province the president of a provincial board of health will be held responsible to this office for the efficiency, industry, good conduct, maintenance of proper records, and the prompt forwarding of required reports by provincial inspectors of vaccinations and vaccinators.

(6) *Vaccinators ordinarily assigned to duty in towns without sanitary organization.*—Vaccinators will ordinarily be assigned by presidents of provincial boards of health to duty in municipalities having no medical men as heads of the local boards of health: *Provided,* That for municipalities having a president of the municipal board of health who is a physician, but in which the population is so great as to make it obvious that the work of vaccination can not be properly carried out by that official without assistance, a suitable number of vaccinators may be detailed by the president of the provincial board of health, under special authority secured from the Commissioner of Public Health in each case, to render the necessary assistance to the president of the municipal board of health in question.

(7) *Relations of employees to presidents of municipal boards of health.*—When vaccinators are assigned to duty to assist a physician who is a president of a municipal board of health they will be ordered to report to him and work under his immediate direction and control; and under such circumstances the president of the municipal board of health will be held directly responsible by the president of the provincial board of health for their good conduct and the proper performance of duty by them.

(8) *Vaccinators in charge.*—Two or more vaccinators will ordinarily be assigned to work together in the same municipality. When several vaccinators are working together in a municipality in which there is no president of municipal board of health who is a physician, one vaccinator will be placed in charge of the others by the president of the provincial board of health and will be responsible to the latter for the efficiency, attention to duty, and good conduct of those subordinate to him.

(9) *Pay and allowance.*—The pay and allowance of inspectors of vaccinations and of vaccinators sent from Manila will be ₱60 per month, with no additional allowance under any circumstances for subsistence. Reimbursement for the actual expense of transportation incurred under orders issued by the Commissioner of Public Health or by presidents of provincial boards of health will be made: *Provided,* That the travel vouchers are made out in duplicate, are properly sworn to as correct by the employee of the vaccination service, are countersigned by the president of the provincial board of health, and are accompanied by duplicate copies of the orders under which the travel was performed and by duplicate receipts for the money expended for transportation.

(10) The pay and allowances of vaccinators appointed in the provinces and not sent from Manila will be ₱30 per month, with an additional allowance for subsistence of not to exceed ₱1 per day for a period of not more than twenty consecutive days in any one municipality, the Auditor having decided that a period greater than twenty consecutive days in any one municipality is not to be regarded as temporary duty. All expense vouchers for subsistence must be made out by each provincial vaccinator in duplicate, properly sworn to as correct by the vaccinator, countersigned by the president of the provincial board of health, and must be accompanied by duplicate copies of the orders under which the duty was performed and by duplicate receipts for the money expended for subsistence. Travel vouchers are made out and rendered by vaccinators appointed in the provinces in the same way as above described for inspectors of vaccinations and vaccinators sent from Manila, except that vaccinators appointed in the provinces are allowed reimbursement for subsistence not to exceed ₱1 per day when traveling as well as when engaged in the work of vaccination. The acceptance by any employee of any personal fees for work performed for any person is unlawful. Fees can only be charged and collected under the provisions of Act No. 309.

(11) All accounts for pay, travel, and subsistence must be forwarded by employees to the president of the provincial board of health of the province in which they are serving, who will carefully examine them and see that they are made out in the required manner before countersigning and forwarding them to the disbursing officer, Board of Health, Manila, for payment. If not properly made out the voucher must be immediately returned by the president of the provincial board of health to the employee of the vaccination service rendering the same, so that they may be corrected without great delay and hardship to such employee, which results when improperly made out vouchers are sent to this office and have to be returned from Manila to the employee for correction. The attention of the presidents of provincial boards of health is particularly invited to the great importance of this matter.

(12) All vouchers for pay must be rendered on Auditor's form blank No. 132; vouchers for traveling expenses and subsistence must be rendered on Auditor's form blank No. 115; receipts for money expended are best taken on Board of Health blank form No. 20 receipt book. Employees of the vaccination service should take care to keep sufficient blank forms of this kind in their possession. Auditor's form blanks Nos. 132 and 115 and Board of Health form blank No. 20 may be obtained from any president of a provincial board of health or from the disbursing officer, Board of Health, Manila, P. I.

(13) *Personal report.*—A monthly personal report and itinerary, showing the station of each employee of the vaccination service, together with a statement as to whether engaged in work or travel for each day of the month or lesser period of duty for which the claim for pay is made, must be sent to the president of the provincial board of health with the pay, subsistence, and

travel vouchers, and will be forwarded by that official, with these vouchers, to the disbursing officer, Board of Health, Manila, P. I.

(14) *Hours of duty.*—The hours of duty for vaccinators and inspectors of vaccinations are from 7.30 to 12 in the morning and from 2 to 5 in the afternoon, daily except Sundays and legal holidays, and these hours will be rigorously observed.

(15) *Amount of work required of employees of the vaccination service.*—It is estimated, from the best information available and reports received in this office, that, allowing for time necessarily lost in travel and in securing attendance for vaccination on the part of the people, one provincial vaccinator should be able to average 60 vaccinations daily. Allowing three hundred working days to the year, each such vaccinator should therefore perform 18,000 vaccinations annually. Many vaccinators have in the past accomplished more than this. It is estimated that one inspector of vaccinations on duty in the provinces should ordinarily be able to inspect 200 vaccinations daily, which, allowing three hundred working days in a year, amount to a total of 60,000 inspections of vaccinations annually.

(16) Record of the amount of work performed by each employee will be kept by the president of the provincial board of health, who will recommend the discharge, for inefficiency, of any employee who fails to secure the above average for two consecutive months: *Provided,* That where an employee fails to secure the above average and the president of the provincial board of health shall certify that the failure of the employee to secure the required average was due to circumstances over which he had no control and not to his inefficiency, such employee may not be discharged.

(17) Unusual efficiency on the part of a vaccinator or inspector of vaccinations should be reported to the Commissioner of Public Health by the president of the provincial board of health for his information.

(18) *Work required of presidents of municipal boards of health.*—Under section 6 of Act No. 308 presidents of municipal boards of health are required to perform the services of vaccinators, and as such will comply with the provisions of this circular. When the vaccination of all the inhabitants of a town possessing a president of municipal board of health is ordered, this official will be required to vaccinate an average of not less than 400 persons per month, and will be expected, if his other duties permit, to exceed this average and bring the work of vaccination to an end at a correspondingly earlier date. Attention is invited to the fact that one president of a municipal board of health recently vaccinated more than 5,000 persons in sixteen days. Where it falls to the president of a municipal board of health to inspect the vaccinations performed by him, an average of 250 persons vaccinated and inspected by him monthly will be regarded as satisfactory.

(19) Any president of a municipal board of health who fails for two consecutive months to accomplish the above required number of vaccinations, after the vaccination of the whole population of his municipality is ordered, will be reported to this office for inefficiency, if due investigation by the president of the provincial board of health shall show that failure to attain the required number of vaccinations was not due to conditions over which the president of the municipal board of health had no control.

(20) No vaccinator will ordinarily be assigned to duty in a municipality having a population of less than 5,000 persons and which has a president of a municipal board of health, provided that cases of smallpox are not occurring in that municipality.

No president of a municipal board of health will be required to perform vaccinations in the absence of an epidemic of smallpox in any municipality other than the one of which he is the health officer.

(21) *Preparation of records.*—All persons performing vaccinations and inspecting vaccinations are required to prepare the records and reports required relative to the individuals vaccinated or inspected by them.

(22) All blank forms and official envelopes will be supplied by the president of the provincial board of health, who will make requisition for them to the Commissioner of Public Health and will be held responsible for their proper supply to the employees of the vaccination service.

(23) The accommodations set aside for the carrying out of vaccination under section 10 of Act No. 309 will be used as an office by the employees of the vaccination service, and for this purpose will be temporarily equipped by the municipal secretary with a table, sufficient chairs, pens, and ink.

(24) All permanent records and reports must invariably be made out in ink.

(25) *Conduct.*—Inefficiency, inattention to duty, or bad conduct will be a cause for recommendation by the president of a provincial board of health for the dismissal of any employee of the vaccination service on duty in his province apparently guilty of same. If such recommendation is approved by the Commissioner of Public Health the employee of the vaccination service so offending will be discharged.

(26) *Uniform and appearance.*—All employees of the vaccination service will wear the prescribed uniform while on duty. They will pay special attention to the neatness of person and clothing. Bearing in mind the medical nature of their work, they will at all times give great care to the cleanliness of the hands and finger nails and the avoidance of infection of the vaccination wounds.

(27) *Assistance by local governing officials.*—All employees will bear in mind that their work will be greatly facilitated by the establishment of cordial relations between themselves and the authorities of the municipalities in which they may be called upon to serve. On arriving in a municipality in which there is no president of the municipal board of health who is a physician, all officials of the vaccination service will promptly call upon the municipal president and request him to facilitate their work as much as possible, and to cause the general information to be properly conveyed to the people as to the presence in the municipality of vaccinators or inspectors of vaccinations of the Board of Health for the Philippine Islands, the place where they may be found, the hours when they are on duty, and the necessity on the part of all persons for being protected against smallpox and for complying with the Insular laws regarding vaccination. If such a list be available the president of the municipality shall give the vaccinators access to a list containing the names of the residents of the municipality or those holding cedulas, to facilitate the work of general vaccination.

(28) Any hindrance by any person to the work of the vaccination service will be promptly reported by the vaccination officials to the president of the municipality. If proper relief and assistance is not offered by him, the facts in the case will be promptly set forth in a report to the president of the provincial board of health by the vaccination official cognizant of the matter, and a duplicate copy of this report will be furnished at the same time to the president of the municipality for his information. The president of the provincial board of health will immediately forward such report on its receipt by him to the proper provincial authorities for their consideration and action, making suitable recommendation in each case.

(29) When vaccinators report for duty in a municipality in which there is a president of the municipal board of health who is a physician they become

his subordinates while serving in that municipality, and it is his duty to make such arrangements with the local authorities as will facilitate the work of the vaccination service.

(30) *Systematic vaccination in provinces.*—Ordinarily a province which is to have its entire population vaccinated will be divided into districts by the president of the provincial board of health, who, in so doing, will consider the number and character of the population to be vaccinated in the proposed district, the difficulties of transportation, and the number of employees to be assigned to that district.

(31) Within the district a regular itinerary from town to town should be prescribed and issued in orders to the respective employees of the vaccination service under this itinerary. The work of vaccination and inspection of vaccinations should be prosecuted systematically, municipality by municipality, the employees of the vaccination service relinquishing their respective work in a municipality only when all persons therein have been vaccinated and the vaccinations inspected. Within municipalities the population should be gone over systematically, street by street. In this way time and labor can be saved and there is less liability of persons being overlooked by the employees of the vaccination service.

(32) *Vaccination during the existence of smallpox.*—When smallpox appears in a municipality of a province in which vaccinators are working a sufficient number of the latter will be withdrawn from other stations of duty and sent without delay to the municipality in which smallpox exists for the purpose of suppressing the disease. Any other occupants of a house in which a case of smallpox has occurred will first be vaccinated, after which the other persons who have presumably been exposed to the infection will be sought out and vaccinated, and recent successful vaccination will not be a bar to the revaccination of such a person.

(33) After such persons as have presumably come in contact with the smallpox infection have been vaccinated such protection by vaccination of the general population as may appear to be necessary will be carried out in order to prevent the further development of the disease.

(34) *Method of performing vaccination.*—Vaccination will be performed in the following manner. (These instructions are the same as given for the city of Manila.)

(35) *Persons to be vaccinated.*—When the population of a province is to be generally vaccinated all persons will be vaccinated who can not show satisfactory evidence of successful vaccination within the previous calendar year.

(36) All persons will be vaccinated or revaccinated who have recently been exposed to the infection of smallpox.

(37) All persons who are transient residents of a municipality the population of which is being vaccinated will be vaccinated unless presenting satisfactory evidence of recent successful vaccination.

(38) All presidents of municipal boards of health will examine the birth records of their municipalities during the months of January and July of each year, and the infants whose births are reported thereon as having occurred during the previous six months' period will be promptly sought out and vaccinated in accordance with the provisions of Act No. 309.

(39) *Enforcement of vaccination.*—Vaccinators are prohibited from using force in accomplishing vaccinations. If vaccination is still refused after the provisions and penalties of Act No. 309 of the Philippine Commission making vaccination compulsory have been explained to the person so refusing, a written report of such refusal will be rendered by the vaccinator to the municipal president,

through the president of the municipal board of health, if there be such a board, requesting that the person so refusing be brought to trial before the courts.

(40) *Courtesy by employees.*—All vaccinators and inspectors of vaccinations will bear in mind the delicate nature of their duties, and will treat the persons to be vaccinated or inspected with proper courtesy and consideration. Children will be treated with especial gentleness.

(41) *Certificates of vaccination by physicians.*—The card certificates of the United States Public Health and Marine-Hospital Service showing that the holder has been successfully vaccinated will be respected by vaccinators, and the same applies to the certificates of successful vaccinations signed by licensed medical practitioners. Such certificates will not be taken up nor will the holder be ordinarily subjected to vaccination within two years after the date of their issue. Record must be made, however, of all the facts in the case required to be entered on the municipal vaccination records, and the entry will be made therein that vaccination of the person named was not made because of the certification of successful vaccination by a surgeon of the United States Public Health and Marine-Hospital Service or by a licensed medical practitioner. In such cases the red card (performance of vaccination) will be filled out and filed in the card index of the municipal board of health, or, in the absence of such a body, with the municipal secretary. Certificates that vaccination has been performed, but not certifying to the success of the operation, issued by the above persons will not be taken up, but under such circumstances the holders of same will be treated as if vaccination in their case had not been performed.

(42) *Certificate of performance of vaccination.*—After accomplishing vaccination the vaccinator will immediately sign and issue to the person vaccinated a red card of the prescribed form. This card will show the name of the province and of the municipality from which issued, and the number corresponding to the entry in the vaccination record of the municipality pertaining to the person so vaccinated. It will also give the name, sex, and age of the person so vaccinated, the location of the vaccination, and the date on which such vaccination was performed.

(43) This card will be retained by the person vaccinated until after examination by an inspector of vaccination, by whom it will be taken up and a white card or blue card, as required, issued in lieu thereof. The red card thus taken up will later be compared with the corresponding entry in the municipal vaccination record, after which the card will be filed with the president of the municipal board of health, if there be one, or with the municipal secretary for possible future reference by name. Filing will be done in alphabetical sequence, on the basis of the family name. By referring to the name card and ascertaining the record number therefrom the data in respect to any person vaccinated and inspected can thus readily be looked up subsequently in the municipal vaccination record.

(44) *Municipal vaccination record.*—The municipal vaccination record will be kept on loose blank form sheets which will be fastened in a suitable cover of stout paper to form permanent records. These form sheets will be folded in the center to form double pages, and these pages will be numbered consecutively as entered upon. As many loose form sheets will be numbered, filled in, stitched together, and placed in the binder from time to time as may be required during the progress of the vaccination work.

(45) The above blank form sheets will show column spaces on each double page for the desired information, the entry for each person being continued on the same line across both pages. The following information will be entered on the blank form sheets:

Column I: The consecutive numbers assigned to the persons vaccinated.

Column II: The names of the persons vaccinated.

Column III: The region of the body on which vaccination was performed.

Column IV: The date of performance of vaccination.

Column V: Evidence or not of previous successful vaccination.

Column VI: The age in years of the person vaccinated.

Column VII: The sex of the person vaccinated.

Column VIII: The date of inspection of the vaccination.

Column IX: The result of the recent vaccination, as to whether successful or not.

Column X: In this column will be noted any complications of the vaccination, remarks as to the apparent quality of the vaccine virus, etc. If the person vaccinated can not subsequently be found for inspection an entry will be made in this column, giving such fact as the reason why inspection of the vaccination was not made.

(46) Columns I to VII, inclusive, will be filled out by the vaccinator at the time the vaccination is made, and his signature will also appear at the bottom of each sheet. Where two or more vaccinators sign the same sheet each will place his initials in the number space opposite the names of the persons vaccinated by him, so that his work may be properly credited. When the municipal vaccination form sheets have been filled up they will be at once turned over by the vaccinators to the secretary of the municipality, who will preserve them as public documents.

(47) Where vaccinations are performed by the local president of the municipal board of health the same records as are required to be kept by provincial vaccinators will be prepared and signed by him and will be filed in the possession of the municipal secretary as a public document.

(48) The inspector of vaccinations or president of municipal board of health acting as such will enter the information required to be entered in Columns VIII, IX, and X, and will sign the form sheet below these columns.

(49) *Municipal consolidated reports of vaccinations performed.*—On concluding their work in a municipality or upon being ordered from it to another station a summary report of the work performed by them in such municipality will be immediately forwarded by the vaccinators to the president of the provincial board of health under whom they are serving, through the president of the local municipality, who will enter thereon a statement as to whether he believes the report to be correct and whether the conduct and efficiency of the vaccinators while in his municipality have been satisfactory. This report will be numerical only and will state:

Column I: Total population of the municipality.

Column II: Total number of persons vaccinated in the municipality.

Column III: Number of persons vaccinated showing evidence of previous successful vaccination.

Column IV: Number of persons vaccinated not showing evidence of previous successful vaccination.

Column V: Total number of adults vaccinated.

Column VI: Total number of children vaccinated.

Column VII: Total number of males vaccinated.

Column VIII: Total number of females vaccinated.

Column IX: Total number of persons vaccinated by each vaccinator, giving the name of the latter.

This report will also state the future itineraries of the vaccinator, so far as known.

(50) Where vaccinations are performed by the local president of the municipal board of health a consolidated report giving the information above specified will be prepared and forwarded by him for each calendar month within five days after the end of such month to the president of the provincial board of health.

(51) As far as practicable, an inspector of vaccination will arrive in a town in which vaccinators have been or are operating about one week after commencement of work by the latter. On arrival, after reporting to the president of the municipality, he will secure from the municipal secretary, giving his receipt therefor, such municipal vaccination record sheets as have been filed with that official by the vaccinators or by the president of the municipal board of health, and will personally examine each person whose name appears thereon to determine whether the vaccination entered therein as having been performed has been successful or not, giving particular care to the differentiation between true vaccinia and inflammation due to pyogenic germs, and to making proper report thereon. He will note in the proper columns on the vaccination record sheets the date on which such inspection was made and the result of the vaccination. If he is unable to verify the result of vaccination in the case of any person whose name appears on the municipal vaccination record he will enter in the column for remarks, opposite the name of the individual in question, the reason why he was unable to make such inspection, as from sickness, death, or absence of the person to be inspected. He will also enter in the column for remarks any facts of interest relating to the character of the vaccine virus used or the proper and cleanly performance of vaccination by the vaccinators. On completion of the inspection of the persons vaccinated the inspector of vaccinations will sign the municipal vaccination record sheets and return the same promptly to the municipal secretary for file as a public document.

(52) In case an inspector of vaccinations is not sent to a municipality in which the president of the municipal board of health is required to perform the vaccination of the population the latter will make the necessary inspection to determine the efficiency of the vaccinations performed by him, will make the required entries regarding such inspection in the municipal vaccination record, and will prepare and forward to the president of the provincial board of health the summary report of inspection of vaccinations as required of inspectors of vaccinations and hereafter described.

(53) *Certificate of unsuccessful vaccination.*—If on examination by an inspector of vaccinations the vaccination performed is found to have been unsuccessful the inspector will at once issue to the person vaccinated a white card signed by him, stating this fact and showing the province and municipality from which issued, the entry number in the municipal vaccination record, the name, sex, and age of the person vaccinated, the location of the vaccination, the date on which the unsuccessful vaccination was performed, and the signature of the inspector of vaccination.

This card will be retained by the person to whom issued, but it is not to be construed as authority for refusal by the holder to submit to revaccination should such be subsequently required.

(54) *Certificate of successful vaccination.*—Where the inspector of vaccinations finds that a vaccination has been successful he will at once issue to the person vaccinated a blue card stating this fact, and showing the province and municipality from which issued, the entry number of the municipal vaccination record, the name, sex, and age of the person vaccinated, the location of the vaccination, the date on which the vaccination was performed, and the signature of the inspector of vaccinations.

This card will be retained by the person vaccinated and will be accepted as exempting such person from further vaccination for the period of two years from the date of the successful vaccination, provided the holder is not found to have been in contact with smallpox during this period.

(55) *Summary report of inspection of vaccinations.*—On concluding his work in a municipality the inspector of vaccinations will compile from the vaccination records of the municipality and promptly forward to the president of the provincial board of health a numerical summary on the prescribed form of the work done by him in such municipality, giving the following information:

Column I: The total number of persons vaccinated as shown by the municipal vaccination records.

Column II: Total number of vaccinated persons inspected as to success of vaccination.

Column III: Total vaccinations found to be successful.

Column IV: Total vaccinations found to be unsuccessful.

Column V: Number of persons inspected who have been previously successfully vaccinated.

Column VI: Total vaccinations successful in persons previously successfully vaccinated.

Column VII: Total vaccinations unsuccessful in persons previously successfully vaccinated.

Column VIII: Total adults successfully vaccinated.

Column IX: Total children successfully vaccinated.

(56) The above report will be forwarded by the inspector of vaccinations, through the municipal president, who, in transmitting it to the president of the provincial board of health, will indorse upon the back of the report a statement as to whether he believes the report to be correct and whether the conduct and efficiency of the inspector of vaccinations while in his municipality have been satisfactory.

(57) *Special reports by inspectors of vaccinations.*—When an inspector of vaccinations or other official engaged in the work of vaccination discovers that the results of vaccination are unsuccessful, due to improper methods on the part of the vaccinators or to deterioration of the vaccine virus, he will at once notify the president of the provincial board of health by the most rapid means of communication, so that the latter may take the necessary steps to stop the work of the vaccinators until fresh virus has been issued them or the methods of the vaccinators have been corrected.

(58) In case of serious illness or death following vaccination, or apparently in any way related thereto, the inspectors of vaccinations cognizant will immediately enter the facts briefly in the column for remarks on the municipal vaccination record, opposite the name of the person vaccinated, and will make a full special report of the fact in writing to the president of the provincial board of health. The latter will make such further investigation of the matter as may be practicable, and will forward all papers with a statement as to the results of any further investigation made by him to the Commissioner of Public Health.

(59) *Certification of municipal vaccination records by the municipal president.*—Before the completed municipal record of vaccinations performed and inspected is finally filed by a municipal secretary it will be signed on the outside sheet by the municipal president, who will also indorse thereon whether he believes the within record to be accurate and whether the conduct and services in his municipality of the official of the vaccination service whose signature appears within have been satisfactory.

In case such services have not been satisfactory or the records are not believed to be accurate the municipal president will at once report the facts in the case to the president of the provincial board of health, who will promptly cause an investigation to be made and take the necessary action in the case.

(60) *Reports by municipal secretaries.*—When the work of general vaccination is undertaken in a province the president of the municipal board of health will request the governor of the province to direct all municipal presidents to cause the municipal secretaries of their respective municipalities, within thirty days after the inspector or inspectors of vaccinations, or the president of the municipal board of health, acting as such, shall have finished their work in their municipalities, to compile from the vaccination records, and forward in writing to the president of the provincial board of health a numerical statement based thereon and giving—

(1) The total population of the municipality.

(2) The total number of persons vaccinated in the municipality during the previous year or the period covered by the vaccination records.

(3) The number so vaccinated but in whom the records show that the operation has not proven, for any reason, to be successful.

(61) *Revaccination.*—When the number of unvaccinated persons or those unprotected against smallpox by failure of vaccination, reported from any municipality by the municipal secretary, is sufficiently large to warrant such action by the president of the provincial board of health, he will cause the necessary number of vaccinators and inspectors of vaccinations to revisit such municipality for the purpose of properly completing the work of the vaccination service in that municipality, at as early a date as practicable, without interfering with the vaccination service in other municipalities of his province. Where officials of the vaccination service revisit a municipality for the purpose of completing work of the vaccination service they will be guided by the same rules as have already been laid down.

(62) *Consolidated reports by presidents of provincial boards of health of vaccinations performed and inspected in their province.*—All reports of vaccinations performed during each month within the various municipalities of the province and all reports of the inspection of such vaccinations received by the president of the provincial board of health will be consolidated by him into a summary report for the province, and a copy of this report will be mailed to the Commissioner of Public Health within five days after the municipal reports upon which it is based have been received. A duplicate copy of this report must be filed in the office of the president of the provincial board of health as part of its records, together with the original municipal reports upon which it is based. In order to insure promptness in the rendering of his consolidated provincial report each president of a provincial board of health will call upon all vaccinators, inspectors of vaccinations, and presidents of municipal boards of health whose reports have not been received by him within a reasonable time to furnish the same without delay.

(63) This consolidated report of the president of a provincial board of health will be rendered on a prescribed blank form and will contain the following information:

Column I: Names of municipalities of provinces in which vaccination work was performed.

Column II: Names of vaccinators or presidents of municipal boards of health performing vaccinations in such municipalities.

Column III: Names of inspectors of vaccinations or presidents of municipal boards of health making inspections of vaccinations in such municipalities.

Column IV: Date when vaccinations were completed.

Column V: Date when inspections of vaccinations were completed.

Column VI: Total number of persons vaccinated.

Column VII: Total number of persons vaccinated showing evidence of previous successful vaccination.

Column VIII: Total number of persons vaccinated not showing evidence of previous successful vaccination.

Column IX: Total number of adults vaccinated.

Column X: Total number of children under 14 years of age vaccinated.

Column XI: Total number of males vaccinated.

Column XII: Total number of females vaccinated.

Column XIII: Total number of persons inspected as to success of vaccination.

Column XIV: Total vaccinations successful.

Column XV: Total vaccinations unsuccessful.

Column XVI: Total number of persons inspected who had previously been successfully vaccinated.

Column XVII: Total vaccinations successful in persons previously successfully vaccinated.

Column XVIII: Total vaccinations unsuccessful in persons previously successfully vaccinated.

Column XIX: Total adults successfully vaccinated.

Column XX: Total children successfully vaccinated.

Column XXI: Quality of virus used.

Column XXII: Conduct of official of vaccination service named.

Column XXIII: Average daily number of vaccinations and inspections of vaccinations performed by each vaccinator and inspector.

(64) Copies of all orders issued during the month by the president of the provincial board of health for the movement of vaccinators and inspectors of vaccination, together with a statement of the proposed stations for duty of these employees during the ensuing month, will be forwarded by him with the consolidated provincial report to the Commissioner of Public Health, so that the latter may at all times be informed as to the whereabouts of such employees.

(65) *Vaccinators' supplies.*—All supplies required in the work of vaccination, such as vaccine virus, carbolic acid, alcohol, cotton, bandages, lamps, and lancets, will be provided by the supply officer of the vaccination division of the Board of Health. Vaccinators proceeding from Manila will provide themselves with supplies before departure for duty in the provinces. Additional supplies for the provinces will be obtained from the president of the provincial board of health, who will make requisition to the Commissioner of Public Health in advance for the articles and quantities likely to be required, keeping in mind the liability of delay in their transportation, so that the work of vaccination may not have to be suspended for lack of supplies. In making requisition, either by letter or telegram, presidents of provincial boards of health must in every case state the quantity required of each article asked for by them. A supply in excess of the probable needs of one month will not ordinarily be asked for. Due economy in the use of supplies will be required.

(66) *Care of vaccine virus.*—All persons performing vaccinations are warned that vaccine virus may be rendered inert and worthless by exposure for an hour or so to direct sunlight, by exposure for a day or so to diffuse light, as in a house, and in a week or ten days under ordinary conditions of temperature. It should therefore be carefully kept away from the light and in a cool place when not required. Where it can not be kept on ice not more than a week's supply should be sent out at any one time, so that the virus in the possession of the vaccinator may always be reasonably fresh.

(67) Should any person performing vaccinations have reason to believe that the vaccine virus in his possession is inert, he will at once suspend work and request a fresh supply of virus from the president of the provincial board of

health by the quickest means of communication. Work done with spoiled virus is not only wasted but it affords an excuse on the part of the people to object to revaccination.

(68) *Supply of vaccine virus.*—Requisitions for the vaccine virus necessary for the performance of vaccination in their provinces will be made by telegraph by presidents of provincial boards of health to the Commissioner of Public Health. Such requisition will be made in advance, bearing in mind the difficulties of transportation, so that the work of vaccination may not be suspended for lack of vaccine virus.

(69) Vaccinators and presidents of municipal boards of health will from time to time, in advance, inform the president of the provincial board of health of the province in which they are of the amount of vaccine virus which will be needed on a date fixed by them for the continuation without interruption of the work of vaccination by them.

(70) Where the time required for communication is so short that vaccine virus may be sent without great liability of deterioration, it may be sent by mail, messenger, or other convenient method, without special measures for its preservation. When shipped under such conditions it must be used without delay on receipt, to prevent spoiling.

(71) In provinces in which general systematic vaccination is to be carried on among the population, and which are not readily accessible from Manila within forty-eight hours by frequent facilities for communication, the Commissioner of Public Health may establish substations for the supply of vaccine virus in the capitals of such provinces, to be under the immediate charge of presidents of the provincial boards of health. These substations will be provided with refrigerators and supplies of ice will be sent from Manila if it can not be purchased locally. All vaccine virus received by presidents of provincial boards of health in charge of such supply stations will be placed in the refrigerator, on ice, until distributed for use in the performance of vaccination. The refrigerators will be habitually kept locked, and the ice issued or purchased for the preservation of the vaccine virus must not be used for any other purpose.

(72) When ice can be purchased locally not more than 50 pounds daily will be authorized for the preservation of vaccine virus at a vaccine virus supply substation; where the necessary ice must be sent from Manila, and is thus liable to loss from melting en route, not more than 100 pounds daily will be supplied. Bills and vouchers, properly receipted by the creditor and certified to as correct by the president of the provincial board of health, will be forwarded by the latter for payment at the end of each month to the Commissioner of Public Health for such ice as may have been purchased locally during the month.

(73) Vaccine virus will ordinarily be shipped from Manila on ice to these vaccine virus supply substations, and also to remote provinces in which vaccinations are being conducted in the suppression of epidemics of smallpox, in specially constructed portable ice boxes holding 100 pounds of ice each. These boxes will be shipped locked, a duplicate key to the locks being in the possession only of the president of the provincial board of health and the supply clerk of the vaccination service, Manila. On arrival the vaccine virus and ice will ordinarily be transferred immediately to the refrigerator of the vaccine virus supply substation and the empty portable ice box returned by the first transportation to the Commissioner of Public Health, so as to be promptly available for sending out further shipments of vaccine virus. Ordinarily it should, if possible, be returned on the same boat on which shipped from Manila. If the portable ice box and vaccine virus on ice is, however, sent to a province in which there is no vaccine virus supply substation and the virus can not be immediately used, the president of the provincial board of health is authorized to retain this ice

box for the purpose of preserving the ice and virus for a period of not to exceed one week or until the first opportunity for its return to Manila after the expiration of that period.

(74) When a supply of vaccine virus is sent from Manila on ice the president of the provincial board of health will be notified by telegraph of the date of shipment and name of the vessel on which shipped, and will take the necessary steps to immediately secure the ice box and virus on arrival of the vessel. When an empty portable ice box is returned by him the date of shipment and the name of the vessel on which shipped will be telegraphed to the Commissioner of Public Health, so that the ice box may be secured without delay on its arrival at Manila.

(75) Where vaccination is being carried out in a remote part of the province requiring more than two days to reach, but to which there is water transportation, vaccine virus should be sent on ice in a portable ice box to the vaccinators, the ice box being promptly returned by them to the president of the provincial board of health. When vaccine virus is sent out to vaccinators they should, if possible, be notified in advance of its shipment and be informed as to the place to which shipped and probable date of arrival, so that it may be secured without delay.

(76) Under authority from the Commissioner of Public Health, vaccine virus may be supplied from a vaccine virus supply substation to provinces adjacent to the one in which such supply substation is located.

(77) Ordinarily the method of supplying vaccine virus will be by small shipments sent frequently to diminish the danger of spoiling before use. The shipment of large lots of vaccine virus, except on ice, to vaccine supply substations is not approved.

(78) All expenses of the shipment of ice and of vaccine virus on ice will be paid from the appropriation made for that purpose.

Probably no more important undertaking was ever assumed by a board of health than that provided for in these circulars.

After the departure of Captain Munson, who, on account of impaired health caused by overwork, was ordered to the United States by the Surgeon-General, this important work was placed in the hands of Dr. Thomas R. Marshall, Chief Health Inspector for the Philippine Islands, who has made such modifications in the published schedules as have been indicated by the exigencies of the service.

THE INFLUENCE OF VACCINATION UPON HUMAN LIFE.

Dr. C. A. Lindley, secretary-treasurer of the Connecticut board of health, one of the leading authorities on sanitation in the United States, quoting in part from a recent book, entitled "A Concise History of Smallpox and Vaccination in Europe," by Dr. Edward T. Edwards, member of the Royal College of Physicians, says in his annual report for 1903:

> There is nothing in all the literature of public hygiene more interesting to the sanitarian or of more weighty import to the well-being of mankind than the results which the practice of vaccination has produced. The records of the last two hundred years sustain the statement that vaccination has accomplished a more amazing and stupendous transformation in the conditions of human life than any other single event of historic times.

The alleged transformation consists in that during the eighteenth century and before smallpox was a disease of childhood almost exclusively. There were few that passed the seventh year of life without having it. The adult population was for the most part the survivors of an attack in childhood. Now the disease is very largely a disease of adults.

Before vaccination smallpox was universal, or nearly so. Now whole nations are exempt from it, and except at intervals it is very rare. Before vaccination it was among the most fatal diseases. In Berlin during seventeen years, from 1758 to 1774, the deaths from all causes numbered 81,133, of which 6,705 died of smallpox, more than 8 per cent, or nearly one-twelfth; of these only 45 were over 15 years old. Jurin showed from the London register that every fourteenth child died of smallpox, and that every fifth or sixth case was fatal.

About one-twelfth of the total mortality from all causes was due to smallpox. In London (1721–1796) of 1,759,298 deaths from all causes, 158,002, about one-eleventh, died of smallpox. The average for the century was one-twelfth.

ASIATIC CHOLERA.

The beginning of the year 1902 found the sanitary outlook in the Philippine Islands very hopeful. Plague, which had been prevalent in the city of Manila since December 26, 1899, had practically disappeared. This satisfactory state of things was unexpectedly changed by the appearance of Asiatic cholera.

The Chief Quarantine Officer was notified on the 3d of March that Asiatic cholera was in Canton, China, and five days later it was reported to be in Hongkong. As Manila was dependent to a considerable extent upon Canton for its supply of green vegetables, the officer representing the United States Quarantine Service at Hongkong was notified that no vegetables not certified by him would be admitted, and an order was issued by the Chief Quarantine Officer of the Philippine Islands on March 19 absolutely forbidding the importation of green vegetables, and the Commissioner of Public Health, as an extra precaution, instructed his subordinates to report all persons suffering from bowel troubles of a suspicious character.

On March 20, at 2.30 p. m., notice was received from the San Juan de Dios Hospital that two patients in that institution were developing symptoms of Asiatic cholera.

The secretary of the Board of Health proceeded at once to the hospital, and the Commissioner of Public Health, the Chief Health Inspector, the Superintendent of Government Laboratories, and the Director of the Biological Laboratory followed within an hour. Specimens of the dejecta from the patients were taken by the Director of the Biological Laboratory, and cultures were prepared immediately upon his return to the laboratory, and the following morning it was known to the officials that the disease was Asiatic cholera. In the meantime two more cases had developed. The Secretary of the Interior informed General Chaffee that four cases of cholera had occurred in Manila and requested that an adequate force be held in readiness to proceed to

Mariquina Valley for the purpose of protecting the water supply of the city of Manila. Additional cases continued to occur, and on March 22 the Director of the Biological Laboratory sent the following official communication to the Commissioner of Public Health:

MANILA, *P. I., March 22, 1902.*

SIR: I have the honor to inform you as follows in regard to the recent examination of cases of suspected cholera:

During the evening of March 20 I was notified that there were two cases of suspected cholera lying in the San Juan de Dios Hospital. On investigation these two cases proved to be male Filipinos, one about 45 and the other 24 years of age.

It was ascertained that the former had been taken sick early in the morning of March 20 with violent purging and cramps in the abdomen. He had been removed to the hospital early in the day suffering with a severe diarrhea and cramps in his legs. On examining the patient at 9 p. m. March 20 he was found to be in a state of extreme collapse. The skin was cold and bathed with perspiration. The rectal temperature registered 102. No pulse could be felt at the wrist, and the heart sounds were very rapid and feeble. He was already unconscious. An examination of the rectum showed no discharge, and it was stated that there had been no bowel movement for about six hours.

A cover-glass preparation was, however, made from the rectal mucosa and examined microscopically. While a few organisms present possibly resembled morphologically the spirillum of Koch, the majority did not suggest this organism.

An examination of the other patient (Case II) showed a somewhat similar condition to the first. He was still, however, conscious, and stated that he had been attacked with severe diarrhea, cramps, and vomiting the previous night (March 19). There had been no diarrhea since morning. He complained of great thirst, and the voice was very husky. The skin was cold to the touch, and no pulse was perceptible at the wrist. An examination of the chest showed rapid, feeble heart sounds. The abdomen was retracted.

These cases were regarded as very suspicious ones from a clinical standpoint, but, as attacks of cholera nostras have occasionally been observed before in Manila, a bacteriological examination was most desirable. As there was also no discharge from the bowels in this case and no soiled linen among the bedclothes, an attempt was made to secure a rectal speculum or rectal tube in order that satisfactory material for a microscopical examination might be secured.

At this time, while a search was being made in the hospital for these instruments, a telephone message was received, stating that a native had just died under suspicious circumstances in one of the districts near by, and that the body was then on the way to the morgue. The further examination of Case II was, therefore, deferred in order that an autopsy might be performed on Case III as soon as possible.

Case III.—The necropsy on this case took place about one hour after death. The body was still warm, but rigor mortis was already marked. The following is a brief summary of the more important changes found present:

The intercostal muscles were dry and red in color. The right chambers of the heart were distended with dark, clotted blood. The bases of the lungs were congested. Upon opening the abdominal cavity the serosa of the ileum and jejunum presented a rose-pink color. The small intestine was dilated, but the large bowel was contracted and pale grayish in appearance. The blood vessels of the small intestine were markedly injected. On opening the ileum a large amount of watery fluid containing whitish flakes escaped. The solitary follicles were swollen and reddened, particularly at their margins. There were many small, diffuse hemorrhages in the mucosa. This process continued nearly through the jejunum. The mucosa of the large intestine was in general pale gray in appearance, but its vessels were injected and numerous small hemorrhages were present. The spleen was small and firm. The capsules of the kidneys stripped easily. The kidneys were much congested and their surface vessels deeply injected. The stomach was distended with gas and contained a small amount of fluid. Its mucosa showed a few small, superficial hemorrhages. The liver showed moderate cloudy swelling. The mesenteric glands were not particularly swollen. Cover-glass preparations were made from the mucosa of the ileum and from the spleen. Those from the latter were negative for organisms. The former showed a number of comma-shaped bacteria, but there were also a large number of other organisms present. Cultures were made from the spleen and from the small intestine in Dunham's solution.

Shortly after midnight, and just before the completion of the above autopsy, a second case was brought to the morgue.

Case IV.—This body was also examined. Moderate rigor mortis was present. The abdominal cavity was free from fluid. The spleen was small and firm. The liver showed cloudy swelling. There was moderate atheroma of the arch of the aorta and congestion of the lower lobe of the left lung. The vessels of the mesentery and of the small intestine were deeply injected. The mucosa of the latter showed numerous diffuse bright hemorrhages, but the swelling of the solitary follicles was not so marked as in Case III. The mucosa of the large intestine also showed numerous hemorrhages, but was elsewhere in general pale in color. Cultures were also made from the intestines of this case.

On arriving at the laboratory pure cultures were made from Dunham's tubes inoculated with material from the small intestine of Cases III and IV. At 9 a. m. of the same day an examination of the culture tubes inoculated from the spleen showed no growth. In those from the small intestines of Cases III and IV there was a distinct cloudiness of the media. Hanging-drop preparations made from the top of the media showed a motile bacterium often curved in shape and occasionally appearing in S-shaped forms. Stained preparations showed a comma-shaped organism measuring about 4 microns in length by four-tenths micron to five-tenths micron in thickness. Preparations made from the colonies which had developed on the plates inoculated with the intestinal material showed the spirillum to possess but a single terminal flagellum. Several large loops from the plate colonies were suspended to 1 cubic centimeter of salt solution and injected into the abdominal cavity of a guinea pig. The same amount was injected into the breast muscles of a pigeon.

Cultures in glucose, agar, and Dunham's solution were prepared from colonies on the plate cultures, and in the latter media also from the upper portion of the original tubes of peptone solution inoculated from the intestine at necropsy. On Friday afternoon the Dunham's tubes all showed a marked indol reaction on the addition of specially prepared nitrite-free sulphuric acid, while the glucose-agar tubes showed no gas production.

It was therefore reported verbally to the Board of Health that probably the spirillum of Asiatic cholera had been isolated.

On Saturday morning the guinea pig was found dead. During the afternoon before its temperature had been subnormal. On autopsy there was a large amount of cloudy, serous fluid in the abdominal cavity. A hanging-drop preparation showed very large numbers of comma and spiral shaped bacteria, all clumping in the serous exudate. The pigeon was still alive and has since remained well.

Case I died on Friday morning, and the autopsy showed, in general, a somewhat similar condition to that observed in Cases III and IV. The large intestine, however, showed more numerous and extensive hemorrhages. There was a large amount of rice-water material in the small intestine. Cover-slip preparations from a floccule of mucus in the ileum showed almost a pure culture of comma and spiral shaped organisms. Cultures in this case have revealed an organism similar to that isolated from Cases III and IV.

Case II is still alive and apparently recovering.

I therefore have the honor to inform you that cases of Asiatic cholera have occurred in Manila and that the spirillum of Koch has been isolated and obtained in pure culture from these cases.

Very respectfully,
RICHARD P. STRONG,
Director of the Biological Laboratory.

The COMMISSIONER OF PUBLIC HEALTH,
Manila, P. I.

There were many people in Manila, some of them physicians, who persistently refused to believe that the disease was Asiatic cholera, and offered many fanciful explanations, one of which was that "a disease of this kind came every year just before the rains." On April 2 the Commissioner of Public Health, for the purpose of abating these disquieting rumors, sent the following official inquiry to the Director of the Biological Laboratory:

Lieut. RICHARD P. STRONG,
Director of the Biological Laboratory, Manila, P. I.

SIR: I have the honor to request that you furnish me with a report of cases of cholera examined from the beginning of the epidemic to March 31, with a statement as to what you have found, and whether the disease is actually Asiatic cholera or not. A brief report from you on this subject is necessary for the reason that a large number of people in the city of Manila, among whom are some physicians, including several Americans, do not believe that Asiatic cholera exists at present in the city of Manila, and are disquieting the people to a certain extent for that reason.

Very respectfully,
L. M. MAUS,
Commissioner of Public Health.

In reply to this communication the Commissioner of Public Health received this letter:

BIOLOGICAL LABORATORY,
Manila, P. I., April 2, 1902.

SIR: In reply to your communication of April 2, I have the honor to inform you that since the outbreak of Asiatic cholera in the city of Manila on March 20, 1902, autopsies have been performed on all bodies brought to the cholera morgue. In 84 of these cases the pathological-anatomical lesions of Asiatic cholera have been found present. Pure cultures of the spirillum of Asiatic cholera isolated from them, as well as the anatomical material collected from them, may be seen by physicians at the Government Biological Laboratory.

Very respectfully,
R. P. STRONG,
Director of the Biological Laboratory.

The COMMISSIONER OF PUBLIC HEALTH,
Manila, P. I.

Thus began the cholera epidemic of 1902–1904, the suffering and financial loss of which is beyond estimate. Up to April 27, 1904, when the

Philippine Islands were declared to be free from cholera, there were officially reported 166,252 cases with 109,461 deaths, or a death rate of 65 per cent. Because the disease was not so prevalent as in other epidemics, many persons who ought to have known better were reluctant to admit its true nature, and probably the deaths of thousands of its victims have been ascribed to other causes. Many municipalities had no sanitary organization at the time, and in others, especially those belonging to the non-Christian tribes, no sanitary records whatever were kept. There is scarcely any doubt that in many instances cases were hidden and burial permits for the dead obtained upon false returns with reference to the cause of death, so that their friends and families might evade the annoyance and inconvenience of quarantining and disinfection. In view of these facts the official figures can not be accepted as entirely correct.

THE EPIDEMIC IN MANILA.

In the city of Manila from March 20, 1902, when the first case was reported, to March 23, 1904, when the city was declared by the Board of Health to be free from cholera, there were 5,581 cases and 4,386 deaths reported, giving a mortality of 78.5 per cent. Three thousand six hundred and two of the cases were males, of whom 2,833, or 78.6 per cent, died, and 1,965 were females, of whom 1,547, or 78.7 per cent, died.

There were 14 cases and 6 deaths in which the sex was not given.

The excess of males over females may be explained by the fact that the former were more exposed to the infection on account of their occupations as sailors, stevedores, boatmen, and laborers along the water front, and to the greater liability of contracting the disease in the small tiendas to which they usually went for their midday meal.

The following tabular statement will show the number of cases in Manila and the mortality by race:

Race.	Cases	Deaths.	Case mortality.
Americans	173	85	49.1
Foreigners	106	62	58.4
Filipinos	4,888	4,031	82.6
Chinese	405	206	50.8
Not stated	9	2	----------

The figures by race show that the Filipinos were more susceptible to the disease than other races, and that the percentage of deaths is much higher in Filipinos than in others. The number of Chinese, in proportion to the population, who have contracted the disease is relatively small. This is probably due in part to the fact that the Chinese drink boiled water in the form of tea, and eat very little uncooked food.

The number of Americans who developed the disease is relatively large. The greater number of cases, however, occurred among soldiers and others who visited or lived with native women and ate and drank food and water that were infected. In other cases Americans were foolish enough to believe that the use of alcoholic drinks was a preventive against cholera, and many lives were sacrificed through this erroneous idea.

The total number of cases and deaths by districts for the entire period covered by the epidemic was as follows:

Health district.	Cases.	Deaths.	Case mortality.[1]
No. 1, San Nicolas	1,179	977	82.86
No. 2, Tondo	1,204	989	82.14
No. 3, Quiapo	568	421	74.18
No. 4, Santa Cruz	733	568	77.48
No. 5, Sampaloc	451	356	78.98
No. 6, Intramuros	320	187	58.48
No. 7, Ermita	791	561	70.92
On boats in river and harbor	292	224	76.71
Not stated	48	104	---------

[1] Per cent.

The number of cases has maintained a relative proportion to the number of inhabitants except in San Nicolas, in which the usual proportion is exceeded. This may be explained, in part, by the probability that many cases developing on boats along the water front were removed to the shore before they were discovered, and in this way recorded as belonging to San Nicolas district.

The records show considerable variance in the rate of mortality. In 1902 the mortality was 80.7 per cent, in 1903 it was 85.6 per cent, and in 1904 it was 91.2 per cent.

The cases occurring in Manila during the epidemic, classified, were as follows:

Age.	Cases.	Deaths.	Case mortality.[1]
Under 1 year	46	44	95.65
1 year to 10 years	766	687	88.15
10 years to 20 years	894	640	71.57
20 years to 30 years	1,747	1,268	72.00
30 years to 40 years	1,024	760	74.21
40 years to 50 years	489	381	77.91
50 years and over	495	390	78.78
Unknown	120	266	---------

[1] Per cent.

It is apparent from these figures that early adult life offers the best chances of recovery, while the extremes of life are most unfavorable.

Through the efforts of the Board of Health, aided by the military authorities, the city water supply has been kept free from infection, thus saving thousands of lives. The esteros of the city and the Pasig River were infected, as proved by bacteriological tests, making it very difficult to control and keep the epidemic within the limits shown by the figures presented, which are practically accurate so far as Manila is concerned. The measures adopted for suppressing the epidemic were thorough enough to have been effective under ordinary conditions. The city was divided into twelve districts for the purpose of inspection, and a medical officer and a corps of sanitary inspectors, varying from thirty to sixty, were placed in each district. House-to-house inspections were made both day and night, in order to prevent cases from escaping the notice of the sanitary authorities. This was necessary in order to detect those cases that were concealed by their relatives or friends, presumably to evade the regulations in reference to the cholera hospital and the detention camp.

A request was made of the division commander for the detail of medical officers, and from time to time such physicians as could be spared by the Chief Surgeon were ordered to report to the Commissioner of Public Health. In all, thirty-one were detailed during the first ten days of the epidemic and were assigned to duty as district medical inspectors, quarantine officers in the bay, rivers, and esteros, in charge of cholera hospitals and detention camps, and to those provinces in which the disease had appeared. Each district medical inspector was supplied with a disinfecting pump and disinfectants and with a corps of men familiar with their use.

Every house in which a case of cholera occurred was thoroughly disinfected after the case and contacts had been removed, and closed against occupancy for five days.

In addition to the measures enumerated the following precautions were taken: (*a*) All wells in the city were closed and distilled water distributed for drinking purposes; (*b*) fruits and vegetables which could be eaten raw, such as pineapples, pears, chicos, watermelons, apples, radishes, lettuce, cabbage, celery, eggplant, tomatoes, peppers, cucumbers, green onions, turnips, water cresses, and sugar cane, were prohibited and a strict inspection made several times daily of all shops and markets in the city; (*c*) hotels, boarding houses, lodging houses, saloons, and other public places were prohibited from using for drinking purposes water that had not been boiled or distilled; (*d*) rigorous quarantine was placed around the city of Manila to prevent the escape to neighboring towns of those who were infected; (*e*) all cascoes, lorchas, barges, launches, and other shipping were required to move out of the Pasig River after 5 p. m. and remain in the bay during the night, where they were thoroughly inspected before being allowed to return to their wharves or moorings the following morning. This course was taken because a large number of cases had occurred on such craft without having been reported to the Board of Health, the bodies of the victims being thrown overboard during the night in order to prevent detection.

PROTECTION OF WATER SUPPLY.

The Mariquina River, from which the city water is obtained, was thoroughly guarded by civil inspectors of the Board of Health and also by a patrol of cavalry. The pueblos of Montalban, San Mateo, and Mariquina are located on the river above the intake, therefore in guarding the water supply in order to prevent infection it was necessary to subject these pueblos to a rigid system of inspection. Later on, at the request of the Board of Health, a battalion of infantry was sent to guard the river on both sides from the intake to Montalban.

DETENTION CAMP AND CHOLERA HOSPITAL.

A detention camp had been built on the grounds at San Lazaro during the preceding winter for the detention of plague contacts, but owing to the disappearance of that disease had not been used. This camp had a capacity of 2,500, and was provided with kitchens, water-closets, bathing facilities, and other conveniences, and answered every purpose of a cholera detention camp.

The first cholera hospital was located on the outer side of San Lazaro Hospital, in the campus, and consisted of hospital tents. It was thoroughly equipped with medical officers, trained nurses, and competent attendants, and during its existence 172 cases were cared for before it was removed to a better site at Santa Mesa generously donated by Señor Juan M. Tuason. The treatment at the hospital consisted of the administration of enemata of 1–1,000 solution of acetezone—a new chemical product discovered by Professors Freer and Novy of the University of Michigan—hypodermics of strychnine and the application of hot-water bottles, and the use of other remedies to meet symptoms as they occurred. The dead were either cremated or buried in hermetically sealed caskets in chloride of lime.

EMPLOYMENT BUREAU.

The Board of Health established an employment bureau through which, during the first two weeks, over 1,500 men, nearly all Americans, were given employment as sanitary inspectors, many of whom had to be discharged for the good of the service during the first few days of their service. Their places were taken by others until the pay rolls showed about 5,000 employees.

QUARANTINE.

There is no doubt that quarantine is the most effective measure that can be used against the spread of cholera, but to be of value at all it must be absolute—that is, against the sick and well alike. There can be no further doubt that apparently healthy men may carry and disseminate the infection of cholera and never develop the disease themselves.

The rigorous measures employed by the Board of Health provoked bitter opposition, yet they were not strict enough to prevent the spread of the disease. For weeks, even months, many persons, for one reason or another, denied that the disease was cholera. Absurd stories were circulated and gained credence among the lower classes, thus making the task of the health authorities more difficult.

Taking everything into consideration, the cholera situation in Manila was handled remarkably well. The Spanish residents established a hospital where their sick might be cared for by their own physicians, under the general supervision of the Insular Board of Health, and later the Board of Health transferred their hospital to an unused portion of the building occupied as a cholera hospital by the Spaniards, and thus founded the noted Santiago cholera hospital, which later was abandoned and the patients transferred to the new San Lazaro hospitals for infectious diseases, one of the leading institutions of its kind in the Orient.

The cholera epidemic in Manila officially came to an end on the 23d day of March, 1904, when the following resolution was passed by the Board of Health:

> Whereas the last case of Asiatic cholera occurred in the city of Manila on February 29, 1904, there having been but four positive or suspected cases of Asiatic cholera in the city of Manila since January 6, 1904; and
>
> Whereas the provinces adjacent to Manila have been free from cholera during the present year: On motion
>
> *Resolved*, That the city of Manila is, and is hereby, declared free from the infection of Asiatic cholera.

CHOLERA IN THE PROVINCES.

During the early days of the epidemic in Manila quarantine guards were placed on all roads, paths, and streams leading out of the city, a water patrol was maintained on the bay, and all vessels leaving Manila were quarantined for the regulation period of five days at Mariveles, and for a longer period if the disease developed on board. No one except health officers was permitted to leave the city without a pass. The efforts of the Board of Health served to retard the progress of the disease, but it was impossible to prevent native canoes from breaking the regulations at night or to prevent the escape from the city of pedestrians if they left by the way of the fields, therefore it is not strange that the disease made its appearance in Bulacan Province as early as March 23 and in Cavite March 27; Bataan, March 28; Ambos Camarines and Rizal, April 2; Laguna, April 7; Pampanga, April 13; Pangasinan, April 24; Tarlac, April 28; Nueva Ecija, May 8; Leyte, May 9; Batangas, May 24; Samar, May 29; Mindoro, June 10; Tayabas, June 13; Zambales and Marinduque, July 1; Benguet, July 4; Cebu, July 14; Union, July 15; Occidental Negros, August 26; Iloilo, August 28;

Surigao, September 5; Capiz, September 8; Oriental Negros, September 29; Misamis and Antique, October 2; Sorsogon, October 15.

In some cases the method of transferring the infection could be traced, but in others the exact means are still a matter of doubt. It was impossible to make the quarantine absolute—an army of trained soldiers could hardly be expected to succeed in such an undertaking under existing conditions, so in spite of the vigilance of the sanitary authorities the infection was carried from island to island by steamers and fishing boats, and into the interior by canoes, bull carts, and pedestrians. Once the disease had broken through the quarantine lines around Manila it was practically beyond control. Land quarantine proved almost useless and sea quarantine only served to delay the progress of the epidemic. It is impossible in these island waters to establish, so long as the people are not in sympathy with the same, a quarantine that can not be evaded by small boats and cunning natives. The result in the Province of Lepanto-Bontoc gives an example of the efficiency of a complete quarantine. This province can be reached only by means of a few narrow trails, which were so carefully guarded that, notwithstanding the fact that the disease was in adjoining provinces, it escaped entirely. The spread of the disease through the Archipelago was the result of the unwillingness of the people—not always natives—to carry out the necessary measures to prevent it. This unwise and mistaken attitude is responsible for the sacrifice of thousands of lives and for untold suffering and great financial loss.

To give a complete history of the epidemic in each province would require more space than that offered by the limits of an annual report, therefore only a few extracts have been made from the reports of the presidents of the provincial boards of health and arranged according to the dates upon which the disease reached the provinces.

Bulacan.—On March 23, 1902, shortly after the outbreak of the epidemic in the city of Manila, a man who had come from that city died of cholera in Malolos, the capital of Bulacan Province, and on the 25th another man, who also had come from Manila by way of Malabon, died of the same disease. From that time the epidemic began to spread with such rapidity that on April 8, 1902, it reached the maximum, 35 cases being registered, after which time it rapidly decreased, so that only one case was reported on the 27th of the same month.

Rizal.—The first town that became infected in the province was Malabon, where the disease was brought from Manila two or three days after the first cases occurred in the city. According to a report of Dr. Pond, dated May 21, 1902, there were many cases in this town, the greater part of them being contacts who were undergoing quarantine. During the first days of June the cholera disappeared from Binangonan and continued in a mild form in Morong, with a daily average of 2 cases.

Toward the 24th of June Maríquina was also infected; 29 cases had already been registered in that town, and during the first days of November the epidemic spread to Calumpang, where the highest number was 7 cases per day, and one or two in the small barrios. In December, 1902, the epidemic continued in the towns of Baras, Cainta, Tanay, and Pasig in a mild form, only 33 cases with 28 deaths being registered.

Ambos Camarines.—On March 30, 1903, the steamer *Castellano* arrived from Manila at Nueva Caceres, the capital of the province, and on the next day one of the crew was attacked with the cholera. The steamer was thereupon placed in quarantine, but, on the next day, April 1, notwithstanding the precautionary measures that had been taken, another case developed in the market of the town. The market was burned and all the persons who were found in the same were taken to the quarantine station. From this date the epidemic was rapidly propagated. The largest number of cases was registered on April 14, when it reached 19, and the largest number of deaths was registered on the 16th, when it reached 12. From this time the epidemic decreased rapidly, and the number of cases and deaths, which were 159 and 106, respectively, during the twenty days of April, went down to 15 cases with 7 deaths during the last ten days. During the month of May only 8 cases and 7 deaths occurred. Soon after its outbreak in Nueva Caceres the epidemic rapidly spread to the other towns of the province, with the exception of Daet, where it did not appear until December, 1902.

The towns in which the disease prevailed with the greatest violence were Magarao, Nueva Caceres, Libmanan, Bombon, Milaor, Minalabag, Calabanga, Quipayo, Nabua, Pili, Bulan, Baao, Gainza, Pamplona, San Fernando, Tigaon, Saguay, and Sipocot. These last four towns did not become infected until the month of May. The towns of Magarao and Nueva Caceres registered the largest number of cases in April, and Daet in December.

During the period between April, 1902, and April, 1903, the epidemic constantly prevailed in Nueva Caceres and Nabua, while it had practically disappeared from the other towns in October, reappearing in Iriga and Baao in January, 1903. During the first two months 895 cases were registered and 648 deaths. The cases decreased to a very few during the following months, excepting in the town of Nabua and during the month of December in the town of Daet.

The methods employed in this province may be taken as fairly representative of those employed throughout the Archipelago, and are here given somewhat in detail. Dr. Shannon Richmond, now president of the provincial board of health in Albay, was at the time of the outbreak of the epidemic in charge of health matters in the Province of Ambos Camarines, and most of the circulars and instructions here given emanated from his office.

A strong cordon, consisting of municipal police and Constabulary, was placed around the city of Nueva Caceres, while a military guard patrolled the river front. No one was permitted to pass the cordon without a pass, and very few passes were given. In order that commerce might not be too greatly interfered with and that those living in the towns surrounding might not suffer for want of food, no rice being grown in this province and Nueva Caceres being the only port in the vicinity, the following arrangements were made: Three stations were established where the transfer of supplies might be made, each of these being under the personal supervision of an American inspector, usually a school-teacher, one station being at the river landing, one on the road leading north, and the third on the road leading east. Supplies were brought to the cordon, where they were to be deposited while the bearer was to withdraw a distance of 20 feet. The person on the other side of the cordon was then to advance and receive the goods. The hours of transfer were from 8 to 11 a. m. and 2.30 to 5.30 p. m. daily. All boats of whatever description were carefully inspected by a medical officer before those aboard were allowed to land, he being the first to board the boat.

The city was divided into districts, each being in charge of an American inspector, who, accompanied by native practicantes and two policemen, started out early each morning and made a house-to-house inspection of his district, sending back one of his policemen with notice of the fact when he found any cases or deaths, while the other policeman remained to guard the house. The most of these inspectors, about 15 in number, were American school-teachers, who volunteered for the work and rendered invaluable assistance, working both day and night.

A board of prominent citizens was appointed for the purpose of raising a subscription fund for the relief of cholera patients and those dependent upon them for support, by which means 2,115 pesos, Mexican currency, was collected, of which 1,000 pesos was paid by Chinese residents, 465 pesos by Americans, 430 pesos by Spaniards, and the balance of 220 pesos by Filipinos. Most of this money was used for the construction of an isolation camp and for the purchase of food for those under surveillance there.

The municipal president issued an order to the effect that all cases of illness of whatever description be reported at once, whereupon a medical officer visited the house and ascertained whether or not the disease was cholera. The bodies of all deceased were viewed, and if death was not the result of cholera a permit to bury the remains was given. The church authorities were forbidden to hold services over the remains unless accompanied by the permit.

It having been found next to impossible to obtain fresh lime, all bodies of cholera cases, with the exception of two or three which were buried in fresh lime, were burned, the cremating being generally done at night under the supervision of four discharged colored soldiers, who were employed as inspectors. A pit was dug, into which was placed half a cord of wood, the body placed on this, covered with five gallons of coal oil, and within two hours would be entirely reduced to ashes.

The following circular of warning was issued on March 24, 1902, the fourth day after the outbreak of cholera in Manila:

To all municipal presidents:

Asiatic cholera has appeared in Manila, and it is necessary that the strictest precautions be taken to prevent its introduction into this province. Therefore you are directed to at once proceed to place your town in as nearly perfect sanitary condition as possible. Have it thoroughly cleaned and use the strongest measures to prevent the committing of nuisances and depositing of filth in the streets and private premises. Warn your people to use only well-cooked foods and boiled water.

If any suspicious case occurs isolate it at once and report same immediately to this office and to the Board of Health in Manila if you have telegraph communication.

If your town is an open port exercise a rigid inspection over all vessels and permit no one to land without strict examination, and in case of cargo from Manila or China do not hesitate to destroy or forbid entry in case of suspicion.

A grave danger menaces the province, and therefore all officials will be held to the strictest accountability for the efficient performance of their duties.

In regard to sanitary arrangements and cleaning your town, the lack of municipal funds will not be accepted as an excuse for nonperformance. If not sufficient funds in treasury to pay laborers you must require the people to assist by contributing labor.

The following military order was sent to all parts of the province:

HEADQUARTERS DIVISION OF THE PHILIPPINES,
Manila, March 25.

Following orders issued to-day:

"[General Orders, No. 66, Headquarters Division of the Philippines, Manila, March 25.]

"In view of the presence of cholera in the city of Manila the civil officers of the Philippine Islands have requested from the commanding general the coöperation of all medical officers in the division, with a view of limiting the spread of and to stamping out this disease. As means to this end all medical officers are hereby announced as members of boards of health and will be guided by the following instructions: By virtue of their authority in such boards they will have charge of the sanitation of the towns in which they are stationed. Under their advice and supervision all such towns will be placed in the best sanitary condition possible. This will be done in coöperation with the board of health when such a board has been organized. When such board is not organized they will take steps at once to constitute such boards. In the sanitation of towns special attention will be paid to water supply, noncontamination of food, and the removal of fecal matter and garbage, with burial at a distance from the towns. Great care will be taken that no fecal matter reaches streams. The details of these and other sanitary measures will be left to the individual medical officers. A site for a detention camp will be secured in each town. This may be met by putting up a temporary bamboo and nipa shelter at an isolated spot, or better by obtaining an isolated house. On the appearance of a case of cholera all persons who have been in contact with such case, except necessary attendants, will be removed to said camp. The sufferer from the disease may be left in his house until his recovery or death. In the latter case, the body will be burned or buried in quicklime. If the house in which the case occurred is of nipa it will be burned; if of wood, carefully disinfected. In towns attacked by cholera all water will be boiled; all sales of vegetables which are not cooked in their preparation for the table will be prohibited, and all such vegetables on hand will be destroyed. Medical officers will organize boards of health in all towns contiguous to stations where boards have not already been organized and will coöperate in the work of such boards in the same manner as in the towns in which they are stationed. An immediate telegraphic report will be made to the chief surgeon of the division on the appearance of cholera. Commanding officers of stations are directed to give every assistance in the carrying out of their work so necessary in limiting the ravages of the disease.

"By command of Major-General Chaffee."

COMMANDING GENERAL FOURTH SEPARATE BRIGADE,
Nueva Caceres.

Another circular of importance was issued on April 1, as follows:

To the PRESIDENT OF NUEVA CACERES.

SIR: Under instructions recently received from the Insular Government at Manila a special provincial board of health has been organized for the purpose of taking precautions against the entry of Asiatic cholera into this province. This board has adopted the following health regulations, which you will bring to the attention of the council of your town and see that same are rigorously enforced:

(1) Impress upon the people the necessity of securing the best sanitary conditions possible, so that in the event a case of cholera develops it will not find favorable conditions in which to spread.

(2) Instruct the people that danger of contracting the disease especially lies in water contaminated with fecal matter, and that whenever possible all water should be thoroughly boiled before drinking, and that raw food, either animal or vegetable, should not be eaten, but all foods should be carefully cooked.

(3) Order a general cleaning of all residences, business places, streets, and institutions of every character, which cleaning should be completed before April 7, on which date a house-to-house inspection will be made by a member of the board of health and as often thereafter as may be advisable. Every householder will be held strictly responsible for the proper cleanliness and sanitation of the premises occupied by him.

(4) All defecating, urinating, and laundering in open canals and drainage ways of the city or barrios must be strictly prohibited, and any violation of this regulation by citizens or by minor children under their custody will be punished according to law.

(5) All unclean sinks, dumping spots, or insanitary nuisances of whatever nature must be cleaned at once, and all open gutters thoroughly cleaned and then flushed with water.

(6) The market must be thoroughly cleaned and the residents and occupants of that part of the city required to keep their premises in a clean condition. The custom of throwing decayed vegetables and refuse on the ground in the market and its vicinity must be stopped, and all said matter must be collected in a selected spot and carefully burned.

You will inform the city council and all officials that this matter is of the greatest importance, and that it is the intention of the Insular Government to hold all officials, both provincial and municipal, to the strictest accountability for the proper performance of their duties.

A special committee appointed by the provincial board of health of Ambos Camarines submitted the report given below to the provincial governor, who caused it to be circulated as a proclamation throughout the province:

NUEVA CACERES, P. I., *April 15, 1902.*

To His Excellency JAMES ROSS,
Governor Ambos Camarines.

SIR: In addition to the report recently submitted, the special provincial board of health has the honor to submit the following for the information and guidance of residents of this province, particularly those living outside of Nueva Caceres. A large number of cases of Asiatic cholera have developed in this city since April 1, and in order to prevent its spread throughout the province it is of the utmost importance that these recommendations, as well as those formerly made, be faithfully carried out:

(1) Cholera being essentially a filth disease, it is of prime importance that all towns be thoroughly cleaned and placed in the best sanitary condition possible. The practice of throwing water and slops beneath kitchens is a particularly pernicious one and should be checked. All gutters or small ponds within the town which contain stagnant water should be drained, and all fecal deposits made at a considerable distance from the house, and, if possible, burned. Fecal matter should never be thrown into or near rivers, streams, or wells, as the infection is most liable to be carried by means of the water which is drunk. Therefore, before being drunk all water should be thoroughly boiled and allowed to cool. The market place should be thoroughly cleaned, the refuse therefrom being burned daily. No vegetables of any kind should be eaten uncooked.

(2) The onset of cholera may be sudden, the patient being seized with severe cramps in the abdomen and legs, diarrhea, vomiting, great prostration, and in this condition may die in two or three hours. In such severe cases diarrhea and vomiting are not infrequently entirely absent. In another, which is the most common form, the symptoms are as above outlined, the patient either dying at the end of twelve or eighteen hours or at that time undergoing a slight change for the better and convalescing within a few days. Again, the first symptoms of the disease may be a slight diarrhea, lasting for several days.

(3) The high mortality in Asiatic cholera is largely owing to the fact that energetic measures are not instituted at once. The diarrhea can be lessened, and the prostration and pain relieved by a combination of ten drops of laudanum and half ounce of brandy every hour or two until the condition is ameliorated, after which the same should be continued at greater intervals. As the arms and legs are always cold, they should be first thoroughly rubbed with a mixture consisting of one part native wine and two parts cocoanut oil, after which they should be surrounded with bottles containing hot water, and the body thoroughly covered with blankets. Patients should not attempt to rise and use a vessel, but should defecate upon old clothes, these to be burned immediately thereafter. Vomited matter should also be destroyed by fire. Vomiting and nausea, as well as the pain, can be relieved by placing mustard plasters over the pit of the stomach.

(4) In every municipality there should be set aside a large nipa building for a hospital, to which all of those attacked should be carried at once. The other

members of the family should be removed to the detention camp on the outskirts of the town, this camp to consist of a number of small houses and to be guarded by police, who should be instructed to allow no one to enter aside from those who are to be kept there in quarantine. Arrangements should be made for feeding all there, and no one in the camp should be allowed to leave until the epidemic is entirely stamped out. Immediately after the patient and other members of the family are removed from the infected house, the building, if of nipa and bamboo, should be burned, this if possible on the ground where it stands. Should such burning endanger other houses the building should be torn down and moved and then burned. If of hard materials the building can be disinfected instead of being burned. To disinfect a building close it well, burn sulphur, or, if sulphur can not be had, rice straw, for several hours; scrub thoroughly with 10 per cent solution of carbolic acid, and then paint the entire interior, preferably giving it two coats. There is but one disposition to be made of the bodies of those who die—cremation. This can be effectually done by placing the cadaver on a pile of wood and brush, thoroughly saturating with five gallons of coal oil, and lighting with a match. Bodies can not be buried in the usual way, as the microbes would in time find their way to wells or streams, and one or two bodies so interred would infect an entire town.

The presidentes of the various towns should be instructed to see that the necessary orders are given for carrying out these instructions, especially as contained in paragraphs 1 and 4.

The following interesting circulars have been translated from the original issued by the Spanish authorities during the cholera epidemic of 1888 and circulated throughout Ambos Camarines, and presumably throughout the Philippine Islands:

RULES OF GENERAL AND PARTICULAR HYGIENE.

Rules recommended to all inhabitants of the entire Archipelago for the prevention, as far as possible, of cases of epidemic cholera and for checking the effects that the said disease may produce.

The majority of the public know that the generally accepted theory regarding the real cause of cholera is a parasite (i. e., microbe) which, once introduced into the organism and deposited in the digestive tract, develops and produces death, the latter, if the disease is not taken in time and energetically combated, being preceded by a class of terrible symptoms.

The contraction or contagion of this disease is supposed to be caused by the inhalation of germs with the atmospheric air by means of the respiratory apparatus, by the imbibition of drinking water contaminated with the microbes, by swallowing food containing the germs, and, above all, it is admitted that the disease is propagated by an infected person carrying it from one place to another, and by articles which have come in contact with those diseased and which have become impregnated or soiled by cholera dejections or emanations.

In all seasons of the year, and especially in this country, the municipal ordinances concerning hygiene should be observed. This necessity is greatest in the towns which are threatened by a cholera epidemic.

The ordinary measures that the authorities have made use of in the towns are not sufficient in these extraordinary cases to prevent the spread of this disease, and it is necessary to adopt more stringent means in order to prevent the disease, as, owing to the carelessness and indifference of the ignorant classes, cholera once introduced spreads rapidly and produces death and desolation everywhere.

Aside from the necessity of taking said measures, much can be done by the local authorities and the residents of the towns by observing and enforcing the hygienic regulations regarding cleanliness, as the latter, as well as food, has its relation to the spread of the disease, for, as everyone knows, the greater the neglect of sanitary precautions the greater are the ravages of the disease. Therefore, at all times, and especially when a disease is epidemic, the following regulations should be strictly enforced:

All residences are to be cleaned, after which they should be whitewashed with lime, which forms an impermeable surface and which is less absorbent than chalk and similar paints.

Guard carefully all infected houses, prohibiting the crowding of persons and animals, and so avoiding a dense and foul atmosphere, which is an appropriate vehicle for the spread and propagation of the disease germs. The houses of the Chinese residents in this country are undoubtedly the first and principal focus for the development of all diseases, and the strictest vigilance should be exercised over them to prevent them, as far as possible, being a menace.

The streets, plazas, promenades, after being swept, should be sprinkled three times daily—i. e., at 6 a. m., 11 a. m., and 4 p. m.—even though no epidemic prevails.

Dead animals found in the streets should be removed at once and buried at a distance from the pueblo.

Frequent inspections by competent persons of water and of food supplies should be made, destroying at once all that are found to be in bad condition.

The eating of fruits or vegetables, unripe or overripe, and of all foods which are in any way harmful, should be prohibited, and the sale of the following prohibited: Uncooked or unroasted corn, green mangoes, cherries, "nanca," and of certain kinds of indigestible bananas (i. e., saba, bungulan), the mixture of various fruits, vegetables, etc., called "guinatan," of the "gelatinous" food called "palitao," etc.

It is wise to abstain from the eating of various foods sold by Chinese and called "lumpia," "jopia," "calamay con arroz malagquit," "pansit," and badly prepared confectioneries and such things.

The source of the water supply is another matter of prime importance. The purest possible should be obtained. Adulterated milk should be guarded against, as well as bread in which the source of the water used is unknown. Milk and bread, being important articles of diet, should therefore be of the best. As the former is often given to the sick, anyone selling impure or adulterated milk should be prosecuted, as such milk is often the cause of grave disorders.

All sweepings and refuse of every character should be removed daily to a point distant from the town and there buried.

There are many towns and even capitals which are not properly ditched, as a result of which pools of stagnant water are often to be seen in the streets, there being no means of drainage. This inconvenience could be remedied in part by the digging of deep wells at convenient distances, these to be covered and to be in communication with all the small ditches, the latter to be made of stone and lime and also to be covered. Such have been constructed in Manila along the "Paseo de Magallanes," near the Walled City, and these convey the water to the moats surrounding the walls. These small pools of stagnant water are very prejudicial to the public health and have a marked influence over the same.

All that has been said regarding the refuse and filth applies also to the rears and sinks, and as the cleaning of latrines is not convenient it should not be done daily. Regarding the latter, great care should be taken to destroy their prejudicial effects. They should be well inclosed and no water should be thrown into them, excepting possibly warm limewater mixture containing one part sulphate of iron to two of the water.

Compliance with these simple hygienic measures will give assurance that the ordinary number of cases will be reduced and the intensity of the disease diminished in time of epidemics.

RULES OF PERSONAL HYGIENE THAT SHOULD BE OBSERVED FOR THE PREVENTION OF CHOLERA.

Keep a cool head, do not become frightened, avoid disagreeable impressions, and take sufficient recreation. Commit no excesses, particularly sexual, which, by weakening the system, render one liable to contract the disease. Do not drink to excess, despite the belief which is prevalent that by the free use of liquors cholera can be avoided, as the truth is just the reverse, many having sacrificed their lives as a result of believing in this fallacy. Do not drink cold water nor partake of iced drinks, and all food taken should be simple and easily digested. All green vegetables should be cooked and fruits be perfectly ripe or pickled, and wines partaken of sparingly. An abdominal flannel bandage should be worn. Avoid catching cold, and one should not expose himself freely to the morning or evening air. Breathe pure and dry air, avoiding badly ventilated and overcrowded rooms. No medicines should be administered excepting such as are prescribed by a doctor, as the various preparations put up and sold as cholera cures are worthless. Only such preparations as are approved by the Royal Medical Academy are of value.

MEASURES TO BE TAKEN WITH A PATIENT.

The moment the slightest indisposition is felt, particularly in the abdomen, a doctor should be summoned, as, if taken in time and treatment undertaken at once, the majority of the cases can be saved. No matter how grave, the case should never be abandoned, as many who were practically dead have been known to recover.

Before the arrival of the doctor, in order not to lose precious time one should proceed in the following manner: Place the patient on a warm bed in a well-ventilated room. Give no food, and if symptoms of colic are present give an injection of warm water, with or without oil, as well as oil by the mouth. Surround the patient with warm-water bottles or small sacks of warm sand. If possible, give a vapor bath. If a patient complains of thirst give ad libitum warm camomile tea, to which has been added a little rum or cognac, and a few drops of laudanum. If there is vomiting give frequent small doses of some sedative. As soon as diarrhea appears give an injection consisting of half a glass of warm water to which is added one tablespoonful of starch and sixteen drops of laudanum. These measures should be followed pending the arrival of the doctor, but when he arrives he will assume full charge of the case. No others than those in attendance should be allowed to enter the sick room. If the patient is not so situated that he can be advantageously treated at home, he should be immediately transferred to a hospital for such cases. The vehicle in which such patients are transferred should be disinfected daily with sulphur fumes and later with carbolic-acid solution. The doctor shall immediately notify the authorities of any cases of cholera or of any suspected cases.

All cadavers shall be taken at once to the morgue, and after twenty-four hours (never before the expiration of that time) be carefully buried in lime in a deep grave.

The name "disinfectant" is given to certain agents which have the power of destroying infection. The use of disinfectants is very old, they having been employed since remote times in connection with the terrible pestilence which formerly made such ravages as to decimate, if not wholly destroy, entire cities. To many drugs has been attributed the power as antiseptics, though most of the older ones have completely dropped out of use. Some, however, notably sulphur, still remain. Of the more effective disinfectants the following are recommended in the order in which they are given, having in mind the ease with which they can be procured, the readiness with which they can be applied, and the cost.

Formerly, and even to the present day, many people believe that a bad odor constitutes the only element of danger, and where no odor no danger exists. As a result of this belief the idea of using aromatics was formed, and the name of deodorants given. Disinfectants destroy the germs, while deodorants merely do away with the bad odor without killing any of the microbes.

Physical or chemical agents may be used as disinfectants. Among the first are included ventilation, heat, and running water. Ventilation, either natural or artificial, purifies the air in houses, hospitals, prisons, etc. Heat is the most powerful of all disinfectants, it being an old method in infected pueblos, as a means not only of purifying the air but of increasing the air currents, serving at the same time to destroy all clothing which has been used by cholera patients, as by further using them the disease would spread.

APPLICATION OF CHEMICAL AGENTS AS DISINFECTANTS.

Disinfection of houses.—Supposing they are occupied, disinfection will be done as a precaution as follows:

To 42 grams of water are to be added 64 grams of nitric acid and 64 grams of powdered niter; this to be placed in a vessel over a fire in the center of the room and stirred slowly with a glass rod or with a clean stick to favor evaporation. This formula has the advantage of not molesting the occupants of the house and is capable of disinfecting about 120 cubic meters. Aside from the above place four plates in the corners of the room, these plates to be filled with 100 grams chloride of lime, adding sufficient water to form a paste, this to be stirred once every three or four days. The former fumigation is to be made daily as long as there are any patients in the house. It is also well to place under the pillows and mattresses 100 grams of sawdust which has been sprinkled with a mixture composed of 5 grams of carbolic acid with a little alcohol.

If a case of death occurs in the house the latter is to be fumigated in the following manner: On a fire in the middle of the room place a vessel containing 250 grams of sulphur moistened with alcohol 36°. Such gilded articles as looking-glasses, picture frames, etc., may be removed from the room to prevent their being injured. The doors and windows are to be closed, and no one should enter the house for twenty-four hours, at which time it should be well aired and later whitewashed and cleaned.

DISINFECTION OF CHOLERA DEJECTION, CLOTHES, ETC.

If there are any urinals or vessels containing vomited matter or feces, five tablespoonfuls of the following mixture should be added: Iron sulphate and lime chloride, equal parts. Later throw the contents in the latrine, or, better, dig a small hole and bury. If thrown in the sink, double the amount of the above mixture should be added to boiling water, and this thrown in the pit. The clothing used by the patient, if old and worthless, should be destroyed by fire. Such articles as are to be preserved should be well packed in sawdust to which carbolic acid has been added, and soon thereafter they should be boiled in water containing ashes. All who have been in contact with the patient should wash their hands in a 5 per cent solution of permanganate of potash. The formulas given (iron sulphate and lime, and sulphur) should also be used in such stables, slaughterhouses, markets, etc., as are in bad condition.

In addition to these the following formula should be employed to disinfect boats: Nitric acid, 180 grams, and pieces of copper to the same amount. Place the copper in a large glass or china vessel, add the acid, and, after closing all hatchways, doors, etc., leave the place. Neither copper in powder nor in filings should be used, as the reaction is very rapid and injury may result to the operator. If the above-mentioned materials can not be obtained the following may be used: Equal parts of common salt and sulphuric acid mixed on a glass vessel and placed in the room to be disinfected, taking the precautions stated above.

These instructions, issued in 1888, will account for the present prevailing opinion among the natives and Spaniards throughout the Philippines that cholera is an air-borne disease, an opinion as dangerous as it is incorrect.

Pampanga.—Cholera appeared in San Simon, in this province, April 6; at San Miguel on the 10th, and two days later it broke out in Macabebe; by the 15th of the month it had reached Sexmoan, from which it rapidly spread to all the remaining pueblos. About the middle of July it began to decrease, so that by the 22d of the same month it only existed in the towns of Bacolor, Betis, San Fernando, and Arayat. It disappeared toward the end of September, 1902, after having caused a considerable number of cases and deaths; the town of Candaba registered 403 cases, with 186 deaths; San Miguel reached the highest rate of mortality, having 349 cases, with 349 deaths.

Tarlac.—One case occurred in the town of Gerona on April 22, 1902, followed by another case on the 29th; these two cases occurred in the same house. After this date no more cases were registered, due to the strict measures which were adopted, the house where the cases occurred and the adjoining one having been burned.

On July 2, 1902, a new case developed in Camiling, followed by three more on the 8th of the same month. From this town it was propagated to the capital about the middle of the month. On the 29th the capital and the towns of Moncada and Camiling were officially declared infected with the disease. Toward the beginning of August it appeared in Victoria, and during the last days of the same month in Santa Ignacia, Paniqui, Murcia, Capas, and Concepcion; thence it rapidly increased in its activity, reaching the maximum on August 31, after which date it began to decrease until it had entirely disappeared by November 28, 1902. Before the appearance of cholera in this province, and as soon as it was officially declared in Manila, strict precautionary measures were taken in the capital and the other towns of the province, sanitary cordons were established in the limits of the same, a thorough cleaning of houses and streets was ordered, the use of raw foods and fruits which were considered dangerous to health was prohibited, and a corps of sanitary inspectors was organized to see that these orders were complied with properly. But, in spite of all, the disease found some means of introducing itself and spreading through the whole province. In Victoria a mortality of 4 per cent of the entire population was registered and 3 per cent in the capital.

Pangasinan.—On April 20, 1902, an isolated case was registered in Lingayen, and on May 20 some cases developed in San Carlos, from where the epidemic spread to the other towns of the province.

The propagation was very rapid, appearing in some instances in two towns on the same day. This was probably due to the carelessness of the inhabitants in complying with the sanitary measures which were advised.

According to the report of the president of the provincial board of health for the province, the towns which suffered most severely were Dagupan, 1,664 cases; San Carlos, 1,150 cases; Mangaldan, 1,033 cases; and Calasiao, 1,018 cases.

Batangas.—Cholera appeared in this province in the town of Lipa on May 20, 1902, and in Tanauan on the 28th of the same month. According to Dr. Woodruff, the first cases had such a short period of incubation that it could be safely stated that they were already sick when they arrived in the town. It was observed in the town of Balayan that the majority of the cases occurred in the barrios that were supplied with water from a river which was infected, but that in others, where the water was obtained from fountains, the cases were very rare. This is one of the provinces in which occurred a large number of cases and deaths.

La Laguna.—The epidemic first appeared in the town of Biñan on May 23, where there occurred during the first ten days 106 cases, with 80 deaths. From this town it spread to the other towns of the province and finally disappeared in the early part of October, 1902.

On the 25th of May, 1903, a sporadic case was registered in the capital, but toward the 20th of June several other cases developed, the maximum being 8 cases, with 5 deaths. From the capital it was propagated to the towns of Pagsanjan, Lumbang, Paete, and Luisiana, but it did not reach any other towns. In the latter town it was confined to one street, where the people supplied themselves with water from an infected well. As soon as this well was closed the disease disappeared.

Union.—On July 6, 1902, cholera appeared in Santo Tomas and Agno, and from these towns it was propagated to the other towns of the province. Toward the latter part of September, 1902, it had considerably decreased, and existed only in Bacnotan, Bauan, and Bangar, where the last cases were registered on October 17. Several houses and a number of bodies were burned during the month of August. During the epidemic very rigorous prophylactic measures were adopted in the capital, where the disease was practically suppressed. The towns in which the disease made the greatest ravages were Bauan, Aringay, and Santo Tomas.

Ilocos Sur.—The epidemic started in San Esteban on July 9, 1902, and, in spite of the measures of precaution and rigorous quarantine in which the town was placed, the same spread through the whole province and did not disappear until the beginning of November, 1902.

Sorsogon.—Cholera appeared in this province on July 25, 1902, and developed with great intensity in the town of Sorsogon, where, on November 19, 1902, 18 cases with 12 deaths were registered. It disappeared during the latter part of December, with a record of 713 cases and 342 deaths. It again reappeared in Bulan during the first days of January, 1903, and during the month 158 cases and 87 deaths were registered. In February it decreased considerably, and during the month of March only 8 cases and 7 deaths were registered.

Ilocos Norte.—The first case was registered in this province in Pacay on July 24, 1902, and from there it spread to Bacarat, Laoag, and other towns of the province. The disease rapidly developed in Bactac, where in less than one month there were 543 cases and 335 deaths. In spite of all the quarantine measures, by the month of August the whole province had become infected, 4,179 cases and 2,946 deaths being registered. By the 1st day of September it had almost disappeared, and was only existing in Parruquin and in a barrio of Bangui, where it was brought from the Cagayan Valley.

According to the data furnished by the president of the board of health, the maximum of cases was registered in Laoag on August 12, 1902, there being 51 cases and 48 deaths. During the month of August there was a general decrease in all the towns with the exception of Dingras, but it did not completely disappear from the province until the middle of December, 1902.

Bohol.—An isolated case was first registered on March 29, 1902. After this the disease again appeared on July 29, 1902, on which date a case occurred in a banca that came from Cebu; thereupon the epidemic spread from north to south of the island, developing steadily until June 20, 1903, when it began to decrease. More than 6,000 cases occurred during the epidemic, most of them being registered in the towns of Valencia, Panglao, Tubigan, Inabanga, Laoay, Bilar, Loon, Ipil, Jagna, and Tagbilaran.

Albay.—Cholera made its first appearance in this province in the town of Guinobatan, and it is supposed that it was carried to this town by some transients, who went there to attend a fiesta on August 15, 1902. From this place it spread to the other towns of the province. The disease was of a mild character, and disappeared in a very short time from the towns of Libong and Polangui to again appear in Ligao, Guinobatan, and Camalig. About the middle of September it was reported that it had entirely disappeared from the whole province, although it is believed that it still continued in Oas, notwithstandng the fact that this statement is denied by the inhabitants of that town. It again appeared in Ligao on January 1, 1903, with an average of two cases per day. The measures adopted in this province were not very rigorous, this course being deemed advisable by the president of the board of health on account of the special conditions of the province.

Benguet.—The first cases were registered during the month of August, but they were very few until the month of September. It disappeared during the month of October, and again appeared in Dish-Dish on November 20, 1902.

Negros Occidental.—For a long time before the cholera appeared in this province rigorous measures had been adopted for the purpose of avoiding the introduction of the disease. On August 18, 1902, a case occurred in Punta Tumungtung, a barrio situated on the seashore, where vessels seek an anchorage in bad weather. That same day the board of health of the province held a special meeting and adopted measures to fight the disease. But in spite of all these measures, which were rigorously carried out to impede the spread of the disease, a person coming from Saravia, a place which was then infected, died in Bacolod on August 24, 1902. During the first part of September the disease was present in the towns of Bacolod, Talisay, Silay, Saravia, Eustaquio Lopez, Victoria, and Manapla. This province is, after Iloilo, the second in the number of cases registered.

The towns which suffered most from the disease are Ginigaran, Bacolod, Pontevedra, Silay, La Carlota, Talisay, Valladolid, San Enrique, Binalbagan, Gimamanlay, and Ilog.

Iloilo.—On August 24, 1902, the first case of Asiatic cholera was found in a small boat that had come from Masbate. The province was already prepared for the epidemic and several cholera hospitals had been built throughout the province. On the 28th of the month the existence of the disease in Iloilo was officially declared, and on the 29th it appeared in La Paz. In the beginning of October it began to decrease in several towns, and during the month of November and the first days of December there were but few cases registered, and it completely disappeared on December 22. Before the appearance of the disease full instructions had been published, a corps of sanitary inspectors had been organized in several municipalities, and quarantine had been established in the towns situated along the seashore. In several of the municipalities temporary hospitals had been built and provided with a force of practicantes and nurses. Notwithstanding all these precautions the epidemic in this province caused a larger number of cases and deaths than in any other province. The towns which gave the highest figures were Cabatuan, 3,203 cases, with 1,643 deaths, and Pototan, 2,181 cases, with 1,990 deaths.

After disappearing during the last days of September it again reappeared on May 5, 1903. This caused the reëstablishment of the sanitary measures which had been abandoned. It again disappeared a little later and reappeared for a second time on July 18, 1903. The new infection was thought to be traceable to a parao that came from Bohol.

Capiz.—The epidemic began in this province on September 8, having been brought by a small fishing boat from Estancia, in Iloilo Province. This boat landed a sick man at Lebas, the port of Capiz city, and sailed away without being identified; from this case the infection gradually spread to every pueblo in the province. A medical inspector was sent from Manila with medicines and disinfectants. The people of Capiz, the capital city, built a cholera hospital and met the situation in other respects in a manner that would have reflected credit on any city of equal size in the United States.

Cagayan de Misamis.—Cholera appeared in this province during the latter part of September, 1902, and had reached Cagayan by the 1st of October. From this town it spread throughout the whole province. On December 26 the *Trenton,* a United States Army transport which had come from Iligan, which was then an infected town, was wrecked near the port of Oroquieta. The officers and crew were given temporary quarters in a camarin (warehouse) where all the useful articles which had been saved from the boat were also taken, as well as a good quantity of rations, consisting mostly of canned goods. On the next day a suspicious case was found in the neighborhood of the camarin, and on the following day another case, which was diagnosed as cholera, was found in the same street near the first case. The disease did not spread, although it continued in a mild form in the town.

Surigao.—Cholera invaded this province but caused very few deaths and afterwards gradually disappeared, to reappear again on November 17, 1902. It was observed in this province that in the towns which were supplied with medicines and disinfectants there were very few deaths, while in those in which the epidemic had become severe it rapidly decreased as soon as medicines and disinfectants were sent.

Romblon.—Cholera started in this province in the town of Banton in September, 1902, and disappeared by the end of October without causing great mortality or spreading to other towns. It reappeared on February 24, 1903, in Odiongan, and on March 2, 1903, in Despujol, but disappeared again on May 26, 1903. During the month of June the epidemic again appeared on the Island of Tablas.

Paragua.—On October 13, 1902, the steamer *Nuestra Señora del Carmen,* coming from San Jose de Buenavista, touched at Calandacan, and on the same day one of the passengers who had landed died of cholera, which was thus introduced into the town. The disease was carried to the capital, Puerto Princesa, by steamer *Fannie.*

Masbate.—Before the appearance of cholera in this province the necessary measures of precaution had been established, but during the month of October a parao succeeded in violating the quarantine regulations and brought the disease to the town of Milagros. On the 28th of the same month the first case was registered in the capital, and from there it began to spread, notwithstanding the quarantine to which both the patient and the infected house were submitted. From the capital it spread to the town of Palanas and afterwards to the towns of Mobo, Baleno, and Magdalena, causing a large mortality in these three towns. About the beginning of May, 1903, it appeared in the towns of San Pascual, Claveria, Aroroy, San Jacinto, San Fernando, and Uson, being spread principally by paraos.

Isabela de Basilan.—The epidemic first started in this province in the town of Calamaran on November 7, 1902, and spread to Nipa, a barrio composed of twenty houses, where it caused 10 deaths in a week. Its introduction was ascribed to the arrival of a vinta which came from Negros Occidental. It disappeared on December 21, after having spread to the other side of Isabela.

The epidemic has also developed in other provinces of the Archipelago, but accurate notes have not been obtained of its march and progress.

Below is given a table showing the number of cases and the case mortality of each province:

Epidemic of cholera in the provinces of the Philippine Islands from March 20, 1902, to August 31, 1904.

Province.	Cases.	Deaths.
Abra	88	47
Albay	1,142	1,049
Antique	2,485	1,798
Bataan	1,267	917
Batangas	3,433	2,718
Benguet	1	1
Bohol	2,706	1,877
Bulacan	1,823	1,363
Cagayan	980	672
Camarines (Ambos)	1,403	1,045
Capiz	4,650	3,016
Cavite	876	634
Cebu	14,210	9,983
Ilocos Norte	1,694	1,228
Ilocos Sur	1,584	1,067
Iloilo	26,427	19,095
Isabela	82	43
Jolo	26	21
La Laguna	2,981	2,399
Leyte	1,445	1,098
Marinduque	608	532
Mindanao	69	36
Mindoro	308	279
Misamis	4,621	2,477
Masbate	497	291
Negros Occidental	8,564	2,553
Negros Oriental	1,136	861
Nueva Ecija	1,905	1,514
Nueva Vizcaya	1	1
Pampanga	1,209	860
Panay	69	39
Pangasinan	7,771	5,478
Rizal	1,260	757
Rizal (Fort William McKinley)	3	3
Romblon	200	74
Samar	1,391	1,345
Sorsogon	542	255
Surigao	1,022	749
Tarlac	986	718
Tayabas	376	246
Union	3,874	2,883
Zambales	2,161	1,412
Zamboanga	273	136
Miscellaneous	52,522	31,505
Total	160,671	105,075

The following table gives the number of cases by months and years:

Epidemic of cholera in the city of Manila and provinces from March 20, 1902, to August 31, 1904.

Month.	Manila.		Provinces.	
	Cases.	Deaths.	Cases.	Deaths.
1902.				
March	108	90	----------	----------
April	586	406	1,927	1,417
May	550	442	2,407	1,681
June	601	492	5,204	4,097
July	1,868	1,053	7,757	5,807
August	720	581	11,247	7,874
September	273	179	48,346	27,410
October	87	57	80,887	18,572
November	336	236	12,358	6,681
December	85	24	5,918	8,583
1903.				
January	7	4	4,921	2,757
February	2	1	2,997	2,009
March	6	6	1,908	1,124
April	83	27	1,772	1,147
May	230	212	1,402	885
June	89	88	8,554	2,945
July	42	88	4,167	2,806
August	89	72	10,212	7,406
September	290	263	4,618	8,672
October	127	118	2,581	1,969
November	31	26	1,119	987
December	14	13	364	270
1904.				
January	4	5	85	24
February	8	3	61	42
March	----------	----------	28	10
April[1]	----------	----------	1	----------
Total	5,581	4,386	160,671	105,075

[1] Last case of cholera occurred in April, 1904.

CHOLERA IN THE ARMY.

The mean strength of the Army in the Philippines from April, 1902, to December, 1903, was 26,915. The number of cases was 586, with 386 deaths. Three hundred and five deaths were those of American soldiers and 81 were Philippine Scouts.

PHILIPPINES DECLARED FREE FROM CHOLERA.

The Board of Health on the 27th of April, 1904, after careful consideration declared by resolution that—

Whereas cases of Asiatic cholera have occurred in but three provincial towns of the Philippine Islands since February 8, 1904; and

Whereas only one case of Asiatic cholera has been reported as occurring at any place in the Philippine Islands since March 8, 1904; and

Whereas the city of Manila was declared on March 23 to be free from the infection of Asiatic cholera: On motion,

Resolved, That the islands composing the Philippine Archipelago are, and are hereby, declared to be free from the infection of Asiatic cholera; and

Be it further resolved, That the Commissioner of Public Health be directed to send a copy of these resolutions to the honorable the Secretary of the Interior, the Municipal Board, the United States Marine-Hospital Service, and the Collector of Customs.

Thus ended the cholera epidemic of 1902 in the Philippine Islands. While its disastrous effects will be felt for many years to come, it is not without its valuable lessons, from which it is hoped that much has been learned.

ORGANIZATION.

The Bureau of Public Health is now organized into eleven divisions, each division being under an officer who has proved himself qualified for the position he occupies:

(1) Division of statistics and reports, including medico-legal matters.

(2) Division of inspection, including transportation and municipal pharmacies.

(3) Leper colony division.

(4) Division of hospitals, including leper hospital, venereal hospital, plague hospital, smallpox hospital, and cholera hospital.

(5) Division of vaccination.

(6) Veterinary division.

(7) Division of sanitary engineering.

(8) Division of disbursements.

(9) Division of property accountability.

(10) Clerical division.

(11) Division of provincial sanitation.

The chief of each division is held accountable for the working and results of his division. It is believed that much labor and time are saved by this organization.

SANITARY INSPECTIONS.

This work was seriously interrupted by the reduction of force and change of system, but, as will be seen from the report of the Chief Health Inspector, it has been organized upon a new basis. Notwithstanding the interruption, there have been made in the city of Manila 408,318 inspections and reinspections of houses; 49,511 houses were cleaned as a result of sanitary inspections; 235 houses were whitewashed and painted; 3,076 were disinfected; 115 houses were condemned and removed; 2,199 cesspools were cleaned; 19,079 yards were cleaned; 300 yards were repaired or repaved; 82 cholera, 70 smallpox, and 95 plague cases were reported; 3,267 sanitary orders were complied with by householders. Forty-two convictions were secured for failure to comply with sanitary orders.

The people in Manila, as elsewhere, object to domiciliary visitation. The Board of Health has placed rigid restrictions upon its inspectors, and under the present system very little complaint is heard. The time has not come when the practice may be dispensed with entirely.

DIVISION OF SANITARY ENGINEERING.

The position of sanitary engineer for the city of Manila has been abolished by legislative action of the Commission and the work of this division transferred to the sanitary engineer for the Philippine Islands. Attention is respectfully invited to his report herewith submitted.

SPECIAL SANITARY INSPECTIONS OF PROVINCES.

During the year a number of medical inspectors have been detailed on provincial duty for the purpose of examining into and reporting upon sanitary conditions, including the measures employed to combat epidemics affecting human beings or the lower animals, and the recording of vital statistics. The reports of these officers are submitted among the special reports hereto appended.

These inspections, when made carefully and tactfully, are productive of great benefit to the service. They bring about a better understanding with reference to what is required by the Insular Board of Health. It is the purpose of the Bureau to extend them so as to include every municipality in the Philippine Islands.

GENERAL SANITATION IN THE PROVINCES.

In the work of organization and administration of provincial health work, as contemplated by Acts Nos. 307 and 308, providing for the establishment of provincial and municipal boards of health, this office has been embarrassed by the lack of properly qualified persons to fill the positions of presidents of municipal boards of health. The law prescribes that a president of a municipal board of health shall be a duly qualified physician or undergraduate of medicine, the latter, under the law, being one who has studied medicine for a period of not less than two years at the Santo Tomas University in the city of Manila and has received the title of "cirujano ministrante" from said university. It frequently happens that, in towns of considerable size, no person with the necessary qualifications can be found. This lack of medical men is undoubtedly an important factor in the responsibility for the high death rate that may be noted in these towns. Many lives are sacrificed annually for want of intelligent medical treatment. This is as true of the city of Manila as it is of the provinces, and should not be construed as meaning that there is a demand for American physicians in the Philippines. The trouble lies with the people themselves, who, in the provinces especially, still cling to their superstitious ideas. They are entirely ignorant of the simplest rules of hygiene or the cause or nature of disease. When they are sick they resort to certain native remedies of doubtful value. These remedies are administered by "mediquillos," who are as far down in the "professional" scale as it is possible to descend. The medical efforts of the "mediquillos" are reinforced by various other things which the Filipino mind is slow to discard.

Without education it is very difficult to impress upon them the importance of hygiene and intelligent medical treatment. They have been long accustomed to looking upon disease as a retribution for sin, and are not eager to believe in the gospel of sanitation. The solution of the problem must be worked out with the coming generations, and will depend as much upon the school-teacher as upon the sanitarian.

Another difficulty that has interfered with the efficiency of the sanitary organization is the lack of transportation facilities. The difficulties in this respect are great at all times, especially during the season of rains. In many districts there are practically no roads, and the only means of communication is by horse or on foot. The Bureau of Engineering is now engaged in building roads and bridges, and within a few years these difficulties may be overcome. The "baguios" make sea transportation on opposite sides of the Archipelago difficult and sometimes dangerous during the alternate half years. Railroad transportation is limited to a single line which runs from Manila to Dagupan. The Board of Health will welcome the "era of railroad building" which has been predicted by the local press.

The municipalities throughout the provinces are generally poor, and expensive sanitary improvements at present are out of the question. The people are rather inclined to let alone what they consider well enough, or, in other words, they are prone to follow the lines of least resistance.

The cause of sanitation has much to hope for from the public-school system. Under its able administration and in the course of time many difficulties which now impede the progress of sanitary science will be removed.

The central sanitary organization of the Board of Health for the Philippine Islands is represented in the provinces by provincial boards of health composed of a president (who must be a graduate physician, registered under Act No. 310, regulating the practice of medicine and surgery in the Philippine Islands), the president of the municipal board of health of the capital of the province, and the provincial supervisor. The secretary of the provincial board acts as secretary and the provincial fiscal as legal adviser of the board. Provincial boards of health are represented in the various municipalities by municipal boards of health, composed of a president (who is required by law to be a duly qualified physician or undergraduate in medicine), a member chosen by the municipal council, a male school-teacher of the municipality (appointed by the division superintendent of public instruction for the division in which the municipality is situated), and the municipal secretary, ex officio. The senior medical officer of the Army or Navy, if there be any such on duty in the municipality, and a resident pharmacist are honorary members of municipal boards of health, but have no vote. It will be seen that the Insular Board of Health through these organizations is brought in touch with the sanitary condition of even the most remote municipalities. Taking advantage of the opportunity offered by this system of organization and acting upon the suggestion of the Chief Health Inspector, Captain Munson, who was at that time Acting Commissioner of Public Health, organized in the month of November, 1903, a school of instruction for presidents of provincial boards of health, and through the agency of this school introduced the sanitary methods of Manila in most of the provincial capitals and in many municipalities throughout the provinces. The general plan and scope of this course of instruction, which lasted several months, the classes being limited to a few members for convenience of teaching, are given in the following circular:

To all presidents of provincial boards of health:

I. With the approval of the honorable the Acting Secretary of the Interior, it is the purpose to order every president of a provincial board of health within the next twelve months to temporary duty in Manila.

II. This tour of duty is for the purpose of familiarizing them with the character of work carried on by the different divisions under the Bureau of Public Health in Manila, so that on returning to their provinces they may be able to conduct their sanitary work along the same general lines and under a common method of procedure.

III. The general scheme of duty as now projected is intended to cover four weeks, will be wholly practical, and is divided as follows:

(1) Six days as assistant district medical inspector.

(*a*) Observing the general work of a sanitary station.
(*b*) The methods of sanitary, house, and food inspection.
(*c*) Disinfection.
(*d*) Plague inoculation.
(*e*) Treatment of plague and cholera houses.
(*f*) Service of sanitary orders.
(*g*) Diagnosis and removal of infectious cases.
(*h*) Rat destruction in prevention of plague.

(2) Two days accompanying the inspectors of plumbing and officials of the pail-conservancy system to observe methods and appliances in use for the sanitary reception and disposal of excreta.

(3) Three days' instruction in port quarantine and method of ship disinfection, under the Chief Quarantine Officer.

(4) Two days' instruction by the veterinary surgeon in clinical and post-mortem diagnoses of epidemic diseases of domestic live stock, and examination of live stock and meat at abattoir.

(5) Two days at the serum laboratory observing the methods of preparing serums and vaccine virus; also of inoculating against rinderpest and the use of fungus against locusts.

(6) One day with the vaccinators in Manila, observing methods of vaccination, records, etc.

(7) Six days as assistant physician at San Lazaro hospitals, observing the management and equipment of the plague, cholera, smallpox, leper, women's, morgue, crematory, and steam disinfecting departments; the treatment of the sick, and the method of making post-mortem examinations and disposal of the dead.

(8) Two days in the office of the Secretary of the Board of Health as his assistant, to observe the keeping of records, calculation of vital statistics, and preparation and the use of reports; also to be present at meetings of the Board of Health for the Philippine Islands, to note methods of procedure, etc.

IV. Presidents of provincial boards of health will be expected to profit as far as possible by the opportunities afforded under this plan for perfecting themselves in their special duties as sanitary officers.

Such notes and memoranda relating to the work of the different divisions of the Board of Health as may be required will be made while on duty in Manila by presidents of provincial boards of health, who may be called upon to render a report based on these notes at the conclusion of their tour of duty to show the degree of professional benefit derived therefrom.

V. Reports will be rendered upon the industry, zeal, and aptitude of each president of a provincial board of health under whom they may be assigned for the purpose of acquaintance with the work and methods of such divisions, and these reports will be filed in the office of the Board of Health as part of the efficiency record of each president of a provincial board of health, and consulted with respect to the fitness of such officials for future promotion.

VI. The hours of duty will ordinarily be from 8 to 12 a. m. and from 2 to 5.30 p. m., daily except Sundays.

VII. As far as practicable two or three presidents of provincial boards of health will be given the benefits of service in Manila at the same time, in connection with the above scheme of instruction, so that in the course of a year all may have enjoyed these opportunities.

VIII. Details for the above purpose will be made only after consulting with the presidents of provincial boards of health, so that they may have ample opportunity to make proper arrangements for the transaction of public and private business during their absence in Manila.

IX. Reimbursement for expenses necessarily and actually incurred for travel from their proper stations to Manila and return, under proper orders, will be made to presidents of provincial boards of health from the funds of the Board of Health for the Philippine Islands. From and including the date on which each president of a provincial board of health reports for duty in Manila under this assignment to the date on which he is relieved therefrom by proper orders, he will be allowed expenses for subsistence at a rate not to exceed ₱2, Philippine currency, per day.

SCHEDULE OF INSTRUCTION FOR PRESIDENTS OF PROVINCIAL BOARDS OF HEALTH IN MANILA.

On arrival in Manila, after reporting at the office of the Commissioner of Public Health for registration, assignments were made as follows:

(1) Two days: Office of veterinary surgeon, Potenciana Building (Dr. M. J. Myers); hours, 8 to 12 and 2 to 5.30, except Sundays; nights at abattoir. Instruction in clinical and post-mortem diagnoses of epidemic diseases of domestic live stock; examination of live stock and meat at abattoir.

(2) Two days: Office sanitary engineer, city of Manila, Potenciana Building (Mr. A. Jadin); hours 8 to 12 and 2 to 5.30, except Sundays. Instruction: Inspection of plumbing and method of operating the pail-conservancy system.

(3) One day: Office chief of vaccinators (Señor Espejo); hours 8 to 12 and 2 to 5.30, except Sundays. Instruction: Method of vaccinating and recording vaccinations.

(4) Six days: Station A, Board of Health (San Nicolas), Health District No. 1; also river and water-front service (Dr. A. Pond); hours 8 to 12 and 2 to 5.30, except Sundays. Instruction: (*a*) Observing the general working of a sanitary station; (*b*) the methods of sanitary, house, and food inspection; (*c*) disinfection; (*d*) plague inoculation ; (*e*) treatment of plague and cholera houses; (*f*) service of sanitary orders; (*g*) diagnosis and removal of infectious cases; (*h*) rat destruction in prevention of plague.

(5) Three days: Office chief quarantine officer for the Philippine Islands (Dr. V. G. Heiser). Instruction in ship inspection, quarantine, and ship disinfection; Sundays not excepted.

(6) Six days: San Lazaro hospitals (Dr. H. B. Wilkinson); departments of cholera, plague, smallpox, leprosy, women's, morgue, crematory, and steam disinfecting plant. Instruction: Management and equipment; treatment of the sick; methods of making post-mortem examinations (Dr. Strong); disposal of the dead.

(7) Two days: Serum Laboratory (San Lazaro, Dr. Jobling); hours 8 to 12 and 2 to 5.30, except Sundays. Instruction: Method of preparing serums and vaccine virus; also inoculations against rinderpest, and the use of fungus against locusts.

(8) Two days: Office of the Secretary, Board of Health for the Philippine Islands. Potenciana Building (Dr. Manuel Gomez). Hours 8 to 12 and 2 to 5.30, except Sundays. Instruction: Keeping of records, calculation of vital statistics, preparation and use of reports.

The success attained by this school of instruction not only proved the wisdom of the plan but fully justified the financial outlay. The native physicians displayed commendable zeal in their efforts to learn the American methods of sanitation.

I desire to publicly acknowledge the kindness of Major Bannister, the surgeon in charge of the First Reserve Hospital, and of Dr. H. Eugene Stafford, the surgeon in charge of the Philippine Civil Hospital.

These gentlemen contributed to the success of the undertaking by taking a part in the school and utilizing the excellent hospitals under their respective managements for the purpose of giving instruction in hospital sanitation. Several clinics, both medical and surgical, were given for the benefit of the visiting physicians.

GENERAL SANITATION IN THE CITY OF MANILA.

STREET CLEANING.

This work is carried on under the direction of the Municipal Board and is well organized. Considerable attention has been given to the matter of repairing and beautifying the streets, and on the whole it may be said that this branch of the public service would reflect credit on any city of equal size in the United States or elsewhere, and that the work of this department has been of much assistance to the Board of Health in their efforts to secure and maintain a condition of municipal cleanliness.

COLLECTION AND DISPOSAL OF GARBAGE AND REFUSE.

This work, like that of street cleaning, is under the direction of the city engineer, but sanitary inspectors of the Board of Health and policemen detailed for sanitary work report any failure to remove garbage or refuse that may be observed by them while making their inspections. These reports are transmitted by this office to the superintendent of street cleaning and collection and disposal of garbage and refuse. The law requires that garbage be placed in water-tight metal containers of suitable size and construction, and these, together with receptacles for other refuse, are required to be placed for collection at the outer curb of the sidewalk in front of the house not earlier than 9.30 p. m. nor later than 5 a. m., from which place their contents are emptied into collection carts and carried to the crematories, where proper disposition is made of them. The system employed seems to be satisfactory, and there is very little complaint heard as to the manner in which this important work is performed.

COLLECTION AND DISPOSAL OF HUMAN EXCRETA.

This work by law is placed under the city engineer, who causes it to be carried out under suitable ordinances passed by the Municipal Board, upon the recommendation of the Board of Health, as provided for in Act No. 1150 of the Philippine Commission.

The work in the past was performed partly by employees of the pail-conservancy system and partly by private contractors authorized by the city engineer. In the future no contractor will be allowed to engage in the work unless he has odorless excavators for the purpose. Heretofore the pail-conservancy system had employed odorless excavators in this work, but the private contractors were allowed to use barrels, buckets, and carts for the purpose. The material collected was taken out into the bay, where it was dumped outside of a certain specified limit. Eternal vigilance was necessary in order to make private contractors comply with the regulations, which, when the nights were dark, could be easily evaded, hence it was deemed best to eliminate all except those who would provide themselves with modern appliances.

The house facilities in the city of Manila for immediate disposal of excreta are of various kinds. A considerable number of modern flush water-closets discharging into septic tanks have been installed. A large number of buildings are still provided with old water-closets of the most primitive design discharging into cesspools or esteros. In other houses cemented privy vaults are in use, with latrine seats on one or more floors, the openings of which are connected with the vault by straight or slanting shafts as may be required. Many houses on the outskirts of the city have no other conveniences of this class than shelters over excavations, or if near water this shelter closet is usually built over it. Where there are no closets the open fields are used; however, the greater part of the houses are provided with closets.

THE PAIL-CONSERVANCY SYSTEM.

The method of disposing of excreta was put in operation by the Board of Health as a temporary measure and has proved as satisfactory as could be expected in the circumstances. The efficiency of the service was greatly impaired by the Trozo fire, which occurred in the month of May, 1903, destroying much valuable equipment. The fact that the temporary character of the system is generally recognized may have kept this valuable branch of the public service from receiving the attention and support which its usefulness merited. The work was placed under the city engineer last February; and will soon be operated under ordinance regulations drafted by the Board of Health, as provided for in Act No. 1150 of the Philippine Commission.

DIVISION OF DISINFECTORS.

A division of disinfectors, under a chief disinfector, has been organized and placed under the direction of the Chief Health Inspector. To the equipment of this important division has been recently added seven Kny-Scheerer Company's No. 2 improved formaldehyde generators with automatic pressure regulators and diaphragm valves. The generators are used for applying a formaldehyde solution, made by thoroughly dissolving 200 parts of chloride of lime in 400 parts of water, filtering the solution, and adding 1,000 parts of a 40 per cent strength formaldehyde. The automatic pressure-regulating diaphragm makes it possible to admit a continuous stream of pure formaldehyde gas into the room to be disinfected. This gas has a powerful germicidal influence, and is one of the most satisfactory and efficient agents for disinfecting rooms that can be tightly closed.

HABITATIONS.

The houses of Manila may be divided into three general classes and designated as Filipino houses, Spanish houses, and modern houses.

THE FILIPINO HOUSE.

Filipino houses are generally elevated on bamboo posts several feet above the ground, and have floors of bamboo slats, roofs of nipa thatch, and walls of nipa or of "sauale" wickerwork. The houses are cool, dry, and well ventilated, and when located on healthful sites, provided with adequate facilities for the disposal of excreta, and kept in a cleanly condition they are very suitable habitations for this climate, but unfortunately the requirements as to sanitation are not usually considered. One great objection to this class of buildings is their inflammable character, which, when the houses are close together, renders it very difficult to control fire, especially during the dry season, if the wind is blowing. In the fire which occurred in the Santa Cruz district in May, 1903, over 15,000 people were deprived of their homes in less than two hours.

THE SPANISH HOUSE.

This class of houses is the type that was built of heavy masonry by the Spaniards, several years ago, to afford security against the attacks of their enemies and to withstand the ravages of time and the danger from fires and earthquakes. In their construction the question of sanitation evidently was not considered. These houses, especially the lower parts, are usually dark and poorly ventilated, without proper sanitary conveniences, and are favorable breeding places for beetles, rats, mice, and other vermin. Chinese and the lower class of Filipinos usually occupy these houses. On account of their massive and faulty structure and their proximity to other buildings it is often impracticable to correct their sanitary defects by any reasonable expenditure. The records of this Bureau show that this class of habitations supplies the greater number of plague cases. This is probably true of tuberculosis and other diseases influenced by the conditions common to such houses.

Suitable ordinances have been prepared to regulate this class of buildings in the way of giving them more light and air and securing greater sanitary conveniences. The Chinese of Manila display their racial energy and ingenuity in many ways, but nowhere more persistently and thoroughly than in their efforts to shut out from their habitations all semblances of fresh air and sunshine.

MODERN HOUSES.

These are generally built of wood, surrounded by porches, and are provided with an abundance of fresh air and sunlight which render them sanitary and inviting. Such houses, as would be expected, are usually provided with proper sanitary conveniences and are maintained in a cleanly condition.

OVERCROWDING.

There are two important factors to be considered in this insanitary condition, so common in the city of Manila. The first is the crowded condition of the buildings with reference to their location, which in part is due to the fact that the city was started wrong and it has remained wrong ever since; but in the nipa districts it is due more especially to the fact that the poor people have to rent the ground from the landowners at so much a square meter; the landowner causes the houses to be erected as closely together as possible in order to increase his income.

The second and most important is the prevailing high rents, which are almost prohibitive. At present very little can be done to relieve the situation. The completion of the electric street-car line will probably bring about some improvement. It is hoped that it will attract those who are able to pay car fare to the suburbs, where they can find more comfortable and more economical houses.

The city engineer will be justified, as soon as conditions will permit, in removing the more insanitary houses in the congested districts. Overcrowding is not so fraught with danger in the Filipino houses as it is in those of Spanish construction. Chinese prefer this condition—whether from sociability, economy, or other cause it is impossible to state. A system of tenement houses affording cheap rents would be one way of overcoming the trouble. The proposed Sanitary Code clearly defines what is meant by overcrowding, and provides a penalty for violating the section relating thereto, but it will be difficult to enforce such an ordinance until other conditions necessary thereto are brought about. Because of the prevailing high rents the poorer classes of Filipinos are practically forced to live under conditions that are extremely demoralizing and unhealthful.

The Chinese population will not be affected by tenement houses, street car or other facilities, or anything else, except strictly enforced sanitary ordinances. The use of mezzanine floors or of cubicles as sleeping rooms is conducive to disease and should not be permitted.

RIVER AND HARBOR POPULATION.

It is estimated that about 15,000 people live upon cascoes, lorchas, launches, and other vessels that ply the Pasig River, esteros, and bay along the water front. These people make their permanent homes on the boats upon which they are employed. Here they live, rear their children, grow old, and die—many of them, on account of their insanitary habits, especially with reference to drinking impure water, long before their physiological time.

They do not realize the importance of supplying themselves with pure water, which at least would save many lives. This mode of life augmented the number of cases of cholera which occurred in Manila. The problem is a difficult one to regulate. The boat dwellers are usually of the least intelligent class. They prefer to throw their dead overboard rather than run the risk of a visit from the Board of Health disinfector. The Board of Health should be provided with a launch, so that daily inspections could be made of these water craft. The services of the police launch are needed for other purposes, which render it impossible to use it for sanitary inspections. A small, well-built launch that can go under the bridges and up the esteros is urgently needed. The problems presented by this subject are not easy to solve. An important step along this line would be the erection of public latrines on shore, convenient to fixed places of moorage, and to require their use. These regulations would doubtlessly be broken by night, but if they could be enforced even in part it would be a great improvement.

Another still more important step would be to pipe the city water supply to numerous places on the river front where it would be easily accessible.

MARKETS AND TIENDAS.

The markets of Manila on the whole are very creditable institutions. During the year a new one has been opened in the Walled City. The small market in Sampaloc district should be remodeled or removed to a more favorable location.

The condition of the public markets reflects credit upon those responsible for their management. It is of the utmost importance that the city should provide suitable screens for keeping the food covered, and rent or sell them to venders. This is the only way in which uniformity and thoroughness in the matter of protecting food from contamination can be obtained. It will be more difficult to regulate the small tiendas or shops. There are about 1,200 such places in the city, and they are a great benefit to the people, especially the laboring class, a large number of whom take their meals in these places, while many others buy certain articles of cooked food there and take them to their homes to be served. It will be necessary for the city authorities to supply these places with a uniform food cover at a moderate price, and make the use of the same compulsory. It will require time and tact to educate the people, especially the Chinese, to an appreciation of these sanitary precautions, but it is necessary that the work be commenced in the right way as soon as possible.

FOODS AND DRINKS.

The work of inspecting the articles of food and drink offered for sale in the various markets and tiendas has not been carried on so thoroughly as during the prevalence of cholera. These inspections are regarded as very important, but the sanitary force has been so greatly reduced that it is impossible to give the subject the attention that its importance requires.

It is the custom of the lower class of Filipino people to handle and inspect critically all articles of food that may be within their reach when they visit a tienda or a market stall. What is not bought is left to be handled by someone else, and by the time it reaches the table it has been exposed to infection from many persons. Cholera has been undoubtedly transmitted in this way, notwithstanding the regulations of the Board of Health which prohibited the handling of food with the hands and required the venders to supply forks for the use of their customers. This regulation was enforced when a sanitary inspector was present, but as soon as he was gone the "costumbre del pais" would again assert itself.

During the prevalence of cholera the sale of about forty articles of food was prohibited. These articles included practically all nonacid fruits that were to be eaten unpeeled without cooking, all salad vegetables, all mollusks, and a considerable number of mixed foods composed in part of prohibited articles. The proscription against these foods was removed as soon as possible on account of the hardships which it necessarily imposed upon the poorer class of the people who were forced to pay more for permissible foods.

The new Sanitary Code makes provision for regulating the management of dairies, bakeries, confectioneries, manufactories of aërated waters, and other places where articles of food and drink are offered for sale.

As soon as the new code is ready for distribution the Board of Health will make active efforts to see that its provisions are enforced. Ordinary supervision is not sufficient to prevent infringements of the ordinance regulating the bottled-water industry. The proposed new code does not permit so many alternatives as the old ordinance regulations, under which it was very difficult to accomplish the desired results.

The dairy question up to this time has not assumed much importance, but in the course of time it will undoubtedly develop into an important industry. The new code has provided for its sanitary regulation.

The sale of food and drink by itinerant street venders is an insanitary practice which it is easier to condemn than to regulate. The personal habits and practices of these venders are not conducive to health. Spoons and plates, after being used by a customer, are wiped and passed to the next. If the customer is a child, even the precaution of wiping the spoon or other article used by the former customer is not considered necessary.

OFFENSIVE OCCUPATIONS.

In every country offensive trades and occupations are necessarily carried on, but it is also necessary for the safety of the public that certain stringent laws should be enacted to govern such occupations.

The present city ordinance, now in effect, prohibits the establishment of any business of a highly offensive or dangerous nature within the limits of the city, or the establishment of less dangerous and offensive businesses within the district of strong materials, and prescribes that such business shall be conducted in a sanitary manner so far as possible.

When the new sewer facilities are completed the question of the disposal of wastes from breweries, tanneries, dyehouses, and other similar places which now pollute the esteros will be solved. In my report for last year I had the honor to suggest that a law be enacted prohibiting the future location of any establishment for the conduction of a more or less offensive trade at any point within the incorporated limits of the city of Manila, prescribing that establishments of this kind now in operation shall be removed within five years.

Inasmuch as a city ordinance made by the Municipal Board of the city of Manila could not regulate such businesses outside of the corporate limits, it would necessitate a law of the Commission to protect completely the city of Manila from such offensive and dangerous occupations.

OPIUM-SMOKING ESTABLISHMENTS.

There are approximately about 200 establishments in the city of Manila where opium smoking is carried on. They are naturally filthy and insanitary, due largely to the character and habits of their patrons. The present way of dealing with them is not satisfactory. There is no law regulating them, hence they are not required to take out licenses. The new Sanitary Code of Manila proposes to regulate the condition of such places, and classes them as "opium divans." It would require a greatly increased police force to suppress this evil, and as long as there are Chinamen in the Philippine Islands there will be opium smokers and opium smoking. If opium divans are permitted to exist the business can be forced out of laundries and tiendas into the divans, where it can be so supervised and controlled as to reduce to a minimum the resulting evil effects which are now apparently on the increase.

The Board of Health deplores the existence of such establishments; nevertheless they exist, and because they do exist and will continue to exist it would seem to be wiser to recognize them for what they are than to ignore them for sentimental reasons.

The habitual use of opium is a curse that will eventually bring disaster to those who indulge in so dearly bought illusory pleasures. The Filipino people merit great praise for withstanding the temptations and keeping themselves from the vice of intemperance.

The report of the opium committee, which is now ready for the printer, contains much valuable statistical information upon the effects of this evil and upon the number of persons of different nationalities in these Islands who use opium.

FREE DISPENSARIES.

Three free municipal dispensaries supply medicines to the poor of the city upon the prescriptions of the municipal physicians. Two of these dispensaries have been established since my last annual report, one in Paco and one in Tondo. The total number of prescriptions filled is as follows: Quiapo, 6,840; Paco, 1,972; Tondo, 2,848—a total of 11,660 prescriptions filled by the three dispensaries.

The poor people are gradually learning to appreciate the advantage of these institutions, as will be seen from the increase over last year, when the number of prescriptions filled was only 6,658.

The Chinese prefer the treatment of their own practicantes, who are as ignorant of the use of drugs as they are of the cause and nature of disease. The influence of Dr. Tee Han Kee, a municipal physician, has done much to improve the attitude of the Chinese toward those measures which are intended for their benefit, and it is believed that in the course of time they will abandon their present erroneous ideas with reference to medicine and disease.

FREE CLINICS.

Bishop Brent, of the Protestant Episcopal Church, maintains on Calle Magdalena, in the district of Trozo, a free clinic for the treatment of all classes of diseases. His work has been a revelation to the people of Manila and marks the beginning of a new era in the administration of charities. With unselfish, broad, unassuming men, such as Archbishop Harty of the Roman Catholic Church and Bishop Brent of the Protestant Episcopal Church, as leaders of the great work of uplifting the Filipino people, there can be no doubt of the ultimate outcome. This Bureau acknowledges its indebtedness to both of these gentlemen for their coöperation and active support.

Free clinics are held daily at each of the municipal pharmacies from 8 a. m. to 5 p. m., and also at each Board of Health station for one hour each day, from 8 to 9 a. m.

HOSPITALS FOR THE INSANE.

In my last annual report I called especial attention to the inadequate facilities for handling the insane. While the outlook in this direction is not all that could be desired, it is much brighter than at any time since the American occupation. The Commission has secured a building at Lomboy for temporary quarters. The contract with the Hospicio de San Jose has been continued, and through the kindness and personal interest of Archbishop Harty the facilities of this well-conducted and desirably located institution have been increased, thus permitting Bilibid and Parian police station to be relieved of this class of occupants to some extent. The insane of the United States Army are cared for by the First Reserve Hospital of this city, pending their shipment to the Government Insane Hospital at Washington City. The Chinese are usually returned to China. The conditions in the provinces are still unsatisfactory. Incomplete statistics show that there are 2,007 insane men and 1,683 insane women in the Philippine Islands, making a total of 3,690. The methods formerly in use in the provinces were as unsatisfactory as they were unscientific. If a patient was violent he was usually taken to a vacant room or house, where his clothes were removed and he was chained securely so that he could not do violence to himself or others. It was comparatively easy to care for them by this method, which is probably the reason for its adoption. The care of the insane, the feeble minded, the orphans, and the aged is one of the most important problems which the Board of Health has under consideration.

GENERAL HOSPITAL.

Since my last report, in which I emphasized the need of a general hospital, there has been something accomplished in this direction. A committee has reported upon the design for a modern building and the Insular Architect has drawn the plans. It is to be located on the grounds on Calle Padre Faura, known as the exposition grounds.

The Secretary of the Interior has approved these plans and they will soon go up to the Commission for final action. The plans provide for a magnificent hospital on the most modern lines, containing offices, operating rooms, extensive wards for men and for women, wards for the insane, detention wards, a medical school, morgue, quarters for nurses and employees, a residence for the superintendent, and kitchens and necessary outbuildings.

There will be four large amphitheaters for medical students' clinics, and provisions are made for the use of the X-rays and of the latest scientific aids to surgery and medicine.

An entire department will be set apart for a maternity hospital, with different wards, and another for the treatment of the general diseases of women. There will also be several large free wards.

The stables, kitchens, and other buildings will be most complete and modern. Altogether the plans provide for the finest modern hospital in the Orient.

SAN LAZARO HOSPITALS.

The old San Lazaro Hospital, with its different departments, and the new hospital for infectious diseases have been placed under one management and renamed the San Lazaro hospitals.

The facilities for handling infectious diseases in Manila were greatly increased by the opening of the infectious-disease department of San Lazaro Hospital last February. This new building is modern in every respect and replaces the former unsuitable buildings which were destroyed by fire in May, 1903. The opening of this new hospital marks an important era in the handling of infectious diseases in the Philippine Islands. There is probably not a more conveniently arranged hospital in the Orient or one better adapted to the purpose for which it is intended. The plans of this building were made by Dr. H. B. Wilkinson, the physician in charge, and perfected by the Insular Architect, who deserves great credit for the satisfactory way in which the building was erected. Attention is invited to the appended report of the physician in charge.

SAN JUAN DE DIOS HOSPITAL.

This hospital is conducted by the Roman Catholic Church. The city of Manila has a contract with the management to care for 100 poor patients daily. The poor people, through the beneficence of the Municipal Board, avail themselves of the services of this excellent institution, as shown by the fact that the free wards are filled to the limit. This hospital deserves great praise for its charitable work. Its doors have been open to all classes, even before the city entered into the present contract to pay for a limited number. The faithful physicians and kind-hearted sisters of charity have cared for the natives and strangers alike. The boisterous American "drunk" has been received with the same kindness as though he were a pay patient. Many Americans will remember in the years to come the San Juan de Dios Hospital when other recollections of their strenuous lives in Manila have faded from their memories.

LABORATORY WORK.

The laboratory work of this Bureau is carried on in the several laboratories comprising the Bureau of Government Laboratories, which, while a separate Bureau, is presided over by a member of the Board of Health.

The new laboratory building with its modern equipment is a monument to the wisdom of the Commission in dealing with problems of Oriental sanitation and to their appreciation of scientific research.

MUNICIPAL PHYSICIANS.

There are in the city of Manila eight physicians employed by the Board of Health, whose duty it is to render medical assistance to the poor of the city. More and more the poor people are learning to appreciate the value of intelligent medical services. There is a considerable number who still view disease as a manifestation of divine displeasure and look upon it as a sacrilege to use other means than prayer, while others are pronounced fatalists and adhere to the "no importa" idea in its entirety. The Board of Health is making a special effort to overcome these false ideas and prejudices and to induce the people to avail themselves of the services of the municipal physicians, who are intelligent men selected by competitive civil-service examinations. Already the favorable effect of this policy is being felt.

MIDWIVES.

The Board of Health employs one Spanish and seven Filipino midwives whose duty it is to attend the confinement cases occurring among the indigent in the city of Manila. These midwives are supplied with antiseptic dressings for the umbilical cord and with maternity bands which are large enough to conserve the body heat so essential to the well-being of the infant during the first days of its life.

A committee of native physicians appointed by the Commissioner of Public Health prepared a pamphlet upon the care of infants, which, in addition to its publication in English and Spanish, has been translated into Tagalog, Visayan, and several other native dialects. One of the pamphlets has been placed in every house in the city of Manila, and each midwife has been supplied with a number of copies for special distribution. There is no doubt that improper feeding and tetanic convulsions due to infection of the umbilical cord are responsible for a large part of the present excessive infant mortality.

TRAINING SCHOOL FOR NURSES.

The bill providing for the establishment of a training school for nurses has not yet been acted upon by the Commission. This matter willl probably be postponed until the erection of the general hospital. Educated and scientifically trained nurses would be of far greater service than the practicante or cirujano ministrante, who generally holds himself above the menial services of a nurse. Consequently this part of the work falls to the muchacho, who performs it—if it is done at all—with the characteristic indifference of his class.

ILLEGAL MEDICAL PRACTITIONERS.

Notwithstanding a carefully prepared law regulating the practice of medicine and surgery in the Philippine Islands, a number of pretenders essay to practice the profession of medicine. This is especially true of the Chinese, who are farther behind in this respect than any other. These "practicantes" are grossly ignorant of even the simplest principles of disease and its treatment. The many means employed to bring about their so-called cures are absurd and ridiculous. They do a great deal of harm, but, as it is impossible to prove that they accept fees for their services, they can not be reached by the law. There is one highly educated, duly qualified Chinese physician in the city, Dr. Tee Han Kee, whose services have been of great value to the Board of Health. Dr. Tee Han Kee has been very zealous and outspoken in his condemnation of the ignorant and harmful customs that prevail among his people, and in consequence of this attitude he has been grossly misrepresented by the very ones whom he sought to benefit.

The illegal Filipino practitioners respect and fear the law, consequently the harm that they are able to do is reduced to a minimum. This class is almost certain, sooner or later, to fall into the meshes of the law.

THE BOARD OF MEDICAL EXAMINERS.

The practice of medicine and surgery in the Philippine Islands is regulated by Act No. 310. Physicians desiring to practice medicine must pass a satisfactory examination, the limits of which are prescribed by law. Graduation from a recognized medical college is required as a condition for admittance to the examination for a certificate to practice.

BOARD OF PHARMACEUTICAL EXAMINERS.

The board is charged with the administration of the law regulating the practice of pharmacy in the Philippine Islands. Applicants for certificates are required to pass a satisfactory examination.

BOARD OF DENTAL EXAMINERS.

The practice of dentistry is also regulated by an up-to-date law which requires a satisfactory examination.

LEGISLATION.

The principal legislation recommended by the Board of Health may be found in the proposed bill entitled "An act providing for the segregation, treatment, and care of lepers in the Philippine Islands" and in a proposed ordinance entitled "An ordinance relating to sanitation and providing for a Sanitary Code for the city of Manila."

The passage of the Sanitary Code will simplify and systemize the duties of the Board of Health in Manila and will also serve as a guide to sanitary legislation in other municipalities.

SANITARY LAWS.

The courts of Manila and the city prosecuting attorney have been zealous in their enforcement of the laws and ordinances relating to sanitation. Without this support it would not be possible to make effective any plan of sanitary improvement, as there are many who regard the penalty clause of sanitary ordinances as the only feature worthy of their consideration. Property owners, as a class, are entirely indifferent to sanitary necessities and comforts of their tenants. Whenever it has become necessary to summon offenders before the courts the so-called better class have not escaped conviction through the power of wealth and influence. It is safe to say that there is no place or city in the world where the laws are more impartially administered than in Manila.

The present system of municipal courts in the provinces is unsatisfactory and uncertain. Municipal presidents, whose duty it is to enforce sanitary ordinances, are more or less influenced by political obligations and political animosities, and not infrequently permit their own friends to go free and punish their enemies too severely.

A general law similar to Act No. 1150 is needed for the provinces in order that the Board of Health may cause to be established, so far as practicable, a uniform system of sanitary ordinances, which, in time, will become generally known and respected.

BILIBID PRISON.

On the 18th of August Bilibid Prison contained 4,346 prisoners, classified as follows:

Nationality of prisoners.	Carcel.		Presidio.		Total.
	Males.	Females.	Males.	Females.	
Americans	71		43		114
Europeans	9		1		10
Natives	1,513	78	2,562	21	4,174
Chinese	46		2		48
Other nationalities					
Total	1,639	78	2,608	21	4,346

This institution has had a daily average of 3,735 convicts for the year, with 265 deaths.

The average rate of mortality among the prisoners in Bilibid Prison for the fiscal year commencing July 1, 1903, and ending June 30, 1904, based on the number of prisoners confined and the number of those who died during each month of the said period, is as follows:

Month.	Monthly average per 1,000.	Month.	Monthly average per 1,000.
1903.		1904.	
July	27.79	January	57.59
August	88.80	February	67.66
September	58.93	March	51.97
October	78.52	April	75.06
November	82.37	May	80.29
December	83.82	June	70.48

The average annual death rate, computed from the figures given in the annual report of the prison, is 70.95 per 1,000.

The high death rate was discussed in detail in my report for last year and the need of additional medical assistance and facilities was brought to the attention of the Commission.

Some time ago a committee was appointed by authority of the Commission to visit and report upon suitable sites for auxiliary prisons in different parts of the Archipelago. This is an important step, and if the plan is carried out it will guarantee to those inmates who are not legally condemned to death the one constitutional right left to them as prisoners—the right to live.

HEALTH OF AMERICAN CIVIL EMPLOYEES.

There has been said and written so much about the question of the health of the American employees of the Civil Government, and so little statistical information published, that this office decided to gather such information as was easily attainable.

The records of the Civil Service Board have not yet been made available for statistical purposes, and in order to make a beginning in the matter the Commissioner of Public Health, under date of March 12, 1904, addressed the following communication to each Bureau chief in the Philippine civil service:

> SIR: I have the honor to request that you will, if convenient, furnish me with the total number of American employees in your office who have served in these Islands for more than two years continuously, together with a statement of the total number of days' sickness of these employees for each of the first two and for any subsequent year of the service.
>
> It is the intention of this office to prepare a statistical table, and the information asked of you is desired to complete that table.

The replies received in answer to this communication have been condensed into a table as shown below.

The statistics are presented as a preliminary study of this important question. When the records of the Civil Service Board are made available it will be possible to secure more reliable data.

The new act granting vacation leaves instead of sick leaves makes it probable that many cases of trivial illness will not be reported.

The figures presented do not include the municipal or provincial employees.

The number of sick days for each employee, according to the reports received, is as follows:

Health statistics.

Bureau.	Average number of sick days for each employee.				
	First year.	Second year.	Third year.	Fourth year.	Fifth year.
Executive	8.50	5.50			
Civil Service	1.40	12.50	4.00		
Insular Purchasing Agent	8.56	6.87	8.81		
Education	.56	8.27	4.87		
Board of Health	11.81	11.31	8.02	8.48	0.81
Forestry	10.52	10.52	8.88		
Mining	8.00				
Public Lands		18.00	7.00		
Agriculture	5.56	6.18	10.62		
Government Laboratories	10.27	10.27	5.88		
Philippine Civil Hospital	21.70	21.70	15.95	6.80	
Philippines Constabulary	.45	8.86	8.18		
Prisons	5.97	8.16	6.66	1.26	
Coast Guard and Transportation	8.60	7.28	1.78	1.54	.42
Coast and Geodetic Survey	1.57	1.57	4.28		
Attorney-General	1.16	9.41	1.58		
Insular Treasurer	2.64	8.52	.47	4.05	
Insular Cold Storage and Ice Plant	8.50	8.50			
Public Printing		5.41	5.44		
Architecture	5.62	1.75	.50		
Engineering		12.98	12.06		
Public Health and Marine-Hospital Service					
General average	4.80	7.68	4.47	.81	.08

These figures show that the second year in the Islands is the critical period in the health of American employees. Where the reverse is indicated, the average for the year has been raised by the prolonged illness of one or more employees. Illness occurring during the first year of tropical life is shorter in duration and milder in character than that of the second year, due no doubt to the condition of the system, which possesses more recuperative power than in the second or critical year. The first few months in the Tropics are often characterized by gastro-intestinal disorders, due largely to change in food and water. These disturbances are often increased and in some cases caused by the use of alcoholic drinks taken with the mistaken idea that they are indicated or necessary. This practice is productive of much harm and should be avoided.

REPORTS OF RECEIPTS.

During the year there were received by the cashier of the Board of Health ₱27,933.64, Philippine currency, and $7,595.02, local currency. This money was received from the following sources:

Source.	Philippine currency.	Local currency.
Burial division	₱11,036.10	$5,626.36
Veterinary division	14,017.60	1,884.50
San Lazaro Hospital	1,324.00	----------
Sale of property	510.00	----------
Sale of vaccine and serums	1,014.60	21.60
Other sources	31.34	62.56
Total	27,933.64	7,595.02

The money collected is accounted for as shown in the tables of the annual report of the disbursing officer.

These tables also give complete data in respect to the amount appropriated by the Commission for the expenses of the Bureau.

VETERINARY DIVISION.

This division, now one of the most important connected with the Bureau of Public Health, has been reorganized and its work greatly extended until it practically reaches every province in the Archipelago. It has grown from a force of one veterinary surgeon to fifteen veterinary surgeons and thirty inoculators, besides several other assistants. These employees are appointed through civil-service examination.

During the year, in the city of Manila, there were examined 94,303 animals at the time of their arrival in the city. At the abattoir, before slaughter, there were 89,299 animals inspected.

A total of 971 animals was condemned on account of disease, and their bodies disposed of by cremation.

The diseases of rinderpest and trypanosomiasis (surra) have received considerable attention from the division during the year. Nine thousand three hundred and nineteen animals have been inoculated for the purpose of immunizing them against rinderpest. Glanders also has been the subject of special work. This disease is very common throughout the Islands. It is not understood by the natives nor by the native practicantes of veterinary medicine. In Manila a veterinary surgeon with a force of inspectors and disinfectors made a thorough inspection of the city, killing and causing to be cremated all diseased animals and thoroughly disinfecting the places where they were kept. If this were done throughout the provinces the disease would soon be eradicated.

Rinderpest and "surra" are still prevalent, several provinces having lost 90 per cent of their carabaos and cattle and 85 per cent of their ponies.

During the month of May, 1903, hemorrhagic septicæmia was introduced into the Islands through the importation of a small herd of carabaos from Hongkong, where the disease was prevalent at that time. Fortunately the infectious nature and deadly character of the disease were recognized before the sick animals were released from quarantine, thus preventing the spread of the disease.

The division needs better facilities for quarantining animals imported into the Islands.

These and other matters are discussed in the report of the chief of the veterinary division.

LOCUSTS.

The important matter of destroying locusts has not received from the Board of Health the attention that it demands, not because it was unrecognized, but because there have been so many things to do that it has been found impossible to attend to all.

The work has been carried on under the provisions of Act No. 817, authorizing and providing for the appointment of a board in each province, with full powers to call upon all able-bodied inhabitants thereof to take united action to suppress the pest, and for other purposes connected with the locust question.

This act covers practically every contingency that may arise, even to the care of the family of any person summoned by the board to take part in the crusade against locusts.

RECOMMENDATIONS.

I renew the recommendations made in my last report.

The need of a general hospital in the city of Manila is obvious to all. Any sacrifice that would not involve the peace of these Islands might well be made to secure this hospital.

The need of appropriate asylums for the insane, the fatherless, and the indigent is equally great.

Hospitals should also be established in certain places in the provinces for the care of natives and Americans, especially of those American employees who leave their homes under the impression that they are entitled to medical care. One of the most important places requiring a hospital of this kind is Cebu. The need is so urgent that it is earnestly recommended that immediate steps be taken to establish a hospital in that city.

All nations which have established colonies in the Tropics give their attention to the construction and equipping of hospitals and of asylums before they begin other public works.

We find in Formosa, Hongkong, Java, Burmah, in the cities of Singapore and Saigon and elsewhere admirable hospitals and asylums where the rich and the needy, the orphans and the insane may be cared for.

It is urgently recommended that every effort be made to remedy the deplorable lack of such institutions in the Philippine Islands.

CONCLUSION.

The Commissioner of Public Health appreciates the friendly and helpful attitude of the surgeons of the United States Army and of the United States Public Health and Marine-Hospital Service, which, with the coöperation of the physicians generally, has done much to facilitate the work of this Bureau. The Society of Physicians and Pharmacists of the Philippine Islands has been ably represented on the Board of Health by its president, Dr. Jose Alemany, and by his successor, Dr. Felipe Zamora, whose helpful advice has been of great value in dealing with many problems that have come up for solution.

In conclusion, the Commissioner of Public Health desires to express his gratitude to the Civil Governor for his friendly advice and interest, to the Philippine Commission for its support, and to the Secretary of the Interior, under whose supervision and direction the work of the Bureau of Public Health is conducted; also to his associates on the Board and to the employees of the Bureau for their faithful and efficient service, and especially to Capt. Edward L. Munson, of the Medical Department of the United States Army, who, while on detached service as assistant to the Commissioner of Public Health, by overwork, sacrificed his health to the cause of sanitary science in the Philippine Islands.

Very respectfully,

E. C. CARTER,
Major and Surgeon, United States Army,
Commissioner of Public Health.

The CIVIL GOVERNOR, *Manila, P. I.*
(Through the Secretary of the Interior.)

STATISTICAL TABLES.

VITAL STATISTICS.

Population of Manila.[1]

Americans	4,389
Filipinos	189,782
Spaniards	2,528
Other Europeans	1,117
Chinese	21,230
All others	895
Total	219,941

Deaths, by race, occurring among residents from September 1, 1903, to August 31, 1904.

Americans	41
Filipinos	10,197
Spaniards	39
Other Europeans	18
Chinese	464
All others	16
Unknown	6
Total	10,781

City death rate per 1,000, by race, from September 1, 1903, to August 31, 1904.

Americans	9.34
Filipinos	53.72
Spaniards	15.42
Other Europeans	16.11
Chinese	21.85
All others	17.88
Average	49.01

A classified report, by sex and condition, of all deaths occurring in residents and transients in Manila from September 1, 1903, to August 31, 1904.

Males.	Number.	Females.	Number.
Married	1,121	Married	840
Widowers	271	Widows	418
Single	940	Single	267
Boys	3,899	Girls	3,366
Condition not stated in certificate	193	Condition not stated in certificate	46
Total	6,424	Total	4,932

Condition and sex unknown, 1; stillbirths, 270; grand total, 11,357.

Number of deaths with medical attendance	5,392
Number of deaths without medical attendance	5,965
Total	11,357

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[1] Official census of 1903.

Deaths, by districts, including transients.

District.	Population.	Deaths.	Rate per 1,000.
Walled City	11,463	509	44.40
Binondo	16,613	762	45.86
San Nicolas	29,059	855	29.42
Tondo	39,045	3,051	78.14
Santa Cruz	35,040	1,619	46.20
Quiapo	11,149	604	54.17
Sampaloc	18,779	1,213	64.59
San Miguel	8,838	418	47.29
Paco	6,725	528	78.51
Ermita	12,226	287	23.47
Malate	8,858	528	59.60
Pandacan	2,990	192	64.21
Santa Ana	3,255	177	54.37
Transient residents	15,901	576	36.22
Unknown		38	
Total	219,941	11,357	

Deaths, by age, including transients.

Age.	Number.	Age.	Number.
Under 30 days	1,213	40 years to 50 years	599
30 days to 1 year	4,901	50 years to 60 years	451
1 year to 2 years	549	60 years to 70 years	306
2 years to 5 years	450	70 years to 80 years	192
5 years to 10 years	151	80 years to 90 years	96
10 years to 15 years	105	90 years to 100 years	42
15 years to 20 years	313	100 years and over	20
20 years to 25 years	442	Unknown	44
25 years to 30 years	604		
30 years to 40 years	879	Total	11,357

Stillbirths, 270.

Comparative mortality from January 1, 1900, to August 31, 1904.

Month.	1900.		1901.		1902.	
	Number of deaths.	Annual death rate per 1,000.	Number of deaths.	Annual death rate per 1,000.	Number of deaths.	Annual death rate per 1,000.
January	1,055	[1]50.79	753	[1]36.25	760	[1]36.58
February	884	[1]47.11	689	[1]36.72	706	[1]37.68
March	887	[1]42.70	885	[1]42.66	770	[1]37.06
April	805	[1]40.04	886	[1]44.07	1,327	[1]66.01
May	732	[1]35.24	903	[1]43.47	1,688	[1]81.26
June	599	[1]29.79	621	[1]30.89	1,418	[1]70.54
July	787	[1]37.88	608	[1]29.27	2,223	[1]107.02
August	825	[1]39.71	702	[1]33.79	1,712	[1]82.42
September	1,027	[1]50.01	767	[1]38.15	1,132	[1]56.81
October	961	[1]46.23	855	[1]41.16	927	[1]44.62
November	976	[1]48.48	848	[1]42.18	1,035	[1]51.48
December	905	[1]43.54	858	[1]41.30	753	[1]36.25

Month.	1903.		1904.	
	Number of deaths.	Annual death rate per 1,000.	Number of deaths.	Annual death rate per 1,000.
January	602	[1]28.98	796	[2]42.64
February	511	[1]27.23	709	[2]40.59
March	539	[1]25.94	751	[2]40.23
April	549	[1]27.31	748	[2]41.40
May	770	[1]37.06	766	[2]41.03
June	592	[1]29.45	800	[2]44.28
July	620	[2]33.21	866	[2]46.39
August	862	[2]46.17	1,032	[2]55.28
September	1,228	[2]67.97		
October	1,217	[2]65.19		
November	974	[2]53.91		
December	894	[2]47.89		

[1] Death rate computed on population of 244,732 (Health Department's census).
[2] Death rate computed on population of 219,941 (official census 1903).

Number of deaths, with causes, occurring among transients in Manila from September 1, 1903, to August 31, 1904.

[These deaths are not included in preparing death rate of city.]

Cause of death.	Americans.		Foreigners.		Filipinos.		Chinese, male.	Total.
	Male.	Female.	Male.	Female.	Male.	Female.		
I.								
GENERAL DISEASES.								
1. Typhoid fever (abdominal typhus)		1			3			4
4. Intermittent fever and malarial cachexia			1		6	1	2	10
4a. Malarial cachexia					5	1		6
5. Variola	1	1	1		4			7
12. Cholera, Asiatic			1		29	12	5	47
14. Dysentery	1	1	2		25	6		35
15. Plague					2	1		3
18. Erysipelas			1					1
19. Other epidemic affections (beri-beri)					20	5		25
20. Purulent infection and septicæmia			1		1	1		3
23. Rabies					1			1
26. Tuberculosis of larynx					1	1		2
27. Tuberculosis of lungs	2		2		45	11	3	63
28. Tuberculosis of meninges					1		1	2
29. Tuberculosis, abdominal					1	1		2
32. White swellings						1		1
35. Scrofula					1	1		2
36. Syphilis					1		1	2
40. Cancer and other malignant tumors of the stomach and liver					2			2
45. Cancer and other malignant tumors of other organs and organs not specified					3			3
53. Leukæmia					1			1
54. Anæmia chlorosis					2			2
56. Acute alcoholism, or chronic			1					1
59. Chronic poisonings							1	1
II.								
DISEASES OF THE NERVOUS SYSTEM AND THE ORGANS OF SPECIAL SENSE.								
61. Meningitis, simple					6	9		15
64. Cerebral congestion and hemorrhage			1		2	1		4
66. Paralysis without apparent cause					1			1
67. General paralysis						1		1
68. Other forms of insanity						2		2
69. Epilepsy						3		3
70. Eclampsia (nonpuerperal)					4	4		8
71. Convulsions of children	1				40	32		73
72. Tetanus					8			8
74. Other diseases of the nervous system						1		1
III.								
DISEASES OF THE CIRCULATORY SYSTEM.								
77. Pericarditis					1			1
78. Acute endocarditis					4	2		6
79. Organic disease of the heart	3		1		4	3	1	12
80. Angina pectoris					2	1		3
81. Affections of the arteries (atheroma, aneurism, etc.)					1			1
82. Embolus and thrombosis			1			1		2
IV.								
DISEASES OF THE RESPIRATORY SYSTEM.								
90. Acute bronchitis					9	3		12
91. Chronic bronchitis					4	3		7
92. Broncho-pneumonia			1		1	1		3
93. Pneumonia				1	71	2	2	76
95. Pulmonary congestion and apoplexy						1	1	2
97. Asthma					2			2
99. Other diseases of the respiratory system (phthisis excepted)					1			1

Number of deaths, with causes, etc.—Continued.

Cause of death.	Americans.		Foreigners.		Filipinos.		Chinese, male.	Total.
	Male.	Female.	Male.	Female.	Male.	Female.		
V.								
DISEASES OF THE DIGESTIVE SYSTEM.								
104. Affections of the stomach (cancer excepted)			1		1	6	1	9
105. Diarrhea and enteritis (under 2 years)		1			4	3	1	9
105a. Diarrhea and enteritis, chronic					6	3	1	10
106. Diarrhea and enteritis (2 years and over)					4	1		5
107. Intestinal parasites					1			1
108. Hernias: Intestinal obstructions					2			2
112. Cirrhosis of the liver			1	1	1	1		4
113. Biliary calculi						1		1
114. Other affections of the liver	1		1					2
116. Simple peritonitis (puerperal excepted)					1	1		2
117. Other affections of the digestive system (cancer and tuberculosis excepted)			1					1
VI.								
DISEASES OF THE GENITO-URINARY SYSTEM AND ITS ADNEXA.								
119. Acute nephritis					3			3
120. Bright's disease	1	1			15	1	1	19
122. Calculi of the urinary tract					1			1
127. Metritis						2		2
VII.								
THE PUERPERAL STATE.								
135. Puerperal hemorrhage						1		1
137. Puerperal septicæmia						2		2
138. Albuminuria and puerperal eclampsia						1		1
140. Other puerperal accidents—sudden death						1		1
VIII.								
DISEASES OF THE SKIN AND CELLULAR TISSUE.								
143. Furuncle						1		1
XI.								
EARLY INFANCY.								
151. Congenital debility, icterus, and sclerema					3	2		5
152. Other special diseases of early infancy						1		1
XII.								
OLD AGE.								
154. Senile debility					7	1		8
XIII.								
AFFECTIONS PRODUCED BY EXTERNAL CAUSES.								
159. Suicide by firearms					2			2
160. Suicide by cutting instruments					1			1
164. Fractures					2		1	3
166. Other accidental traumatism	1				2			3
167. Burns		1				2		3
172. Accidental submersion	1		1		2			4
173. Inanition	1							1
176. Other external violence					1			1
XIV.								
ILL-DEFINED DISEASES.								
178. Sudden death					1			1
179. Unspecified or ill-defined causes of death					1			1
Total	13	6	19	2	371	143	22	576
Grand total	19		21		514		22	576

Mortuary report from September 1, 1903, to August 31, 1904.

[Transients and stillbirths excluded.]

Cause of death.	Americans.		Foreigners.		Filipinos.		Chinese.		Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
I.									
GENERAL DISEASES.									
1. Typhoid fever (abdominal typhus)	1				54	51	3		109
4. Intermittent fever and malarial cachexia				1	55	37	16	1	110
4a. Malarial cachexia					29	15	11		55
5. Variola	6	1	1		10	6	1		25
6. Measles			1			2			3
8. Whooping cough					1	1			2
9. Diphtheria and croup						1			1
9a. Diphtheria					1			1	2
10. Grippe					9	4			13
12. Asiatic cholera	2		4		205	150	14	1	376
13. Cholera nostras						1			1
14. Dysentery		1	2	1	127	103	50		284
14a. Epidemic dysentery	1								1
15. Plague	1				35	12	36		84
17. Leprosy					17	8			25
18. Erysipelas					3	4	1		8
19. Other epidemic affections (beri-beri)			1		128	104	65		298
20. Purulent infection and septicæmia					10	1			11
21. Glanders and farcy					1				1
22. Malignant pustule and anthrax					3				3
23. Rabies					1				1
26. Tuberculosis of larynx					36	22	1		59
27. Tuberculosis of lungs			6		485	365	101	1	958
28. Tuberculosis of meninges					17	15			32
29. Tuberculosis of abdomen				1	16	16	1	1	35
30. Pott's disease						2			2
32. White swellings					1				1
33. Tuberculosis of other organs					1		1		2
34. Generalized tuberculosis					6	5	2		13
35. Scrofula					5	3	1		9
36. Syphilis					6	4	7		17
39. Cancer and other malignant tumors of the buccal cavity					2	1			3
40. Cancer and other malignant tumors of the stomach and liver					1	6			7
42. Cancer and other malignant tumors of the female genitals				1		5			6
43. Cancer and other malignant tumors of the breast						2			2
44. Cancer and other malignant tumors of the skin					1	1			2
45. Cancer and other malignant tumors of other organs and organs not specified					2	5	2		9
47. Acute articular rheumatism					6				6
48. Chronic rheumatism and gout					19	21			40
49. Scurvy					1	1			2
50. Diabetes					1	1	1		3
53. Leukæmia					1				1
54. Anæmia chlorosis			1		8	11		3	23
55. Other general diseases						2			2
56. Acute alcoholism or chronic	2				2				4
II.									
DISEASES OF THE NERVOUS SYSTEM AND THE ORGANS OF SPECIAL SENSE.									
60. Encephalitis					7	6			13
61. Simple meningitis			2	2	223	171	3		401
62. Progressive locomotor ataxia					2		2		4
63. Other diseases of the spinal cord					1	2			3
64. Cerebral congestion and hemorrhage	1		2		60	46			109
65. Cerebral softening					4	1			5
66. Paralysis without apparent cause					2	3	1		6
67. General paralysis					12	20	5		37
68. Other forms of insanity						1	3		4
69. Epilepsy					2	1			3
70. Eclampsia (nonpuerperal)				2	271	253			526
71. Convulsions of children		1			1,851	1,605	4	7	3,468
72. Tetanus	1				44	48			93
73. Chorea						1			1
74. Other diseases of the nervous system					19	32			51

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Mortuary report from September 1, 1903, to August 31, 1904—Continued.

Cause of death.	Americans.		Foreigners.		Filipinos.		Chinese.		Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
III.									
DISEASES OF THE CIRCULATORY SYSTEM.									
77. Pericarditis					1				1
78. Acute endocarditis			1	1	17	9			28
79. Organic disease of the heart	3		3		33	38	36	1	114
80. Angina pectoris		1	1		23	36			61
81. Affections of the arteries (atheroma, aneurism, etc.)			1		13	15			29
82. Embolus and thrombosis			1		3	4			8
85. Hemorrhages						1			1
86. Other affections of the circulatory system							1		1
IV.									
DISEASES OF THE RESPIRATORY SYSTEM.									
88. Affections of the larynx					4	4			8
90. Acute bronchitis	1		1	1	282	250	1	1	537
91. Chronic bronchitis			1		243	213	25		482
92. Broncho-pneumonia					12	18		1	31
93. Pneumonia	1				51	17	2		71
94. Pleurisy			1		4	1			6
95. Pulmonary congestion and apoplexy	1			1	13	13	3		31
96. Gangrene of the lungs					1				1
97. Asthma					16	25	6		47
98. Pulmonary emphysema						1			1
V.									
DISEASES OF THE DIGESTIVE SYSTEM.									
100. Affections of the mouth and its adnexa					4	1			5
101. Affections of the pharynx					2				2
103. Ulcer of the stomach					5	3			8
104. Other affections of the stomach (cancer excepted)			1		31	34			66
105. Diarrhea and enteritis (under 2 years)	2		1	1	71	74	3	1	153
105a. Chronic diarrhea and enteritis	1				285	227	2	1	516
106. Diarrhea and enteritis (2 years and over)			2		21	12	2	2	39
107. Intestinal parasites					5	6			11
108. Hernias: Intestinal obstructions					18	4			22
109. Other affections of the intestines					1	1			2
110. Acute yellow atrophy of the liver	1			1	12	2	3		19
112. Cirrhosis of the liver			1		14	6	1		22
113. Biliary calculi					1	2			3
114. Other affections of the liver			2		8	2			12
116. Simple peritonitis (puerperal excepted)					8	9	1		18
117. Other affections of the digestive system (cancer and tuberculosis excepted)			1		1				2
118. Appendicitis and abscess of the iliac fossa					2	1			3
VI.									
DISEASES OF THE GENITO-URINARY SYSTEM AND ITS ADNEXA.									
119. Acute nephritis	1		1		27	16	5	1	51
120. Bright's disease	1		1	1	38	32	10		83
122. Calculi of the urinary tract					4				4
123. Diseases of the bladder					2	2			4
125. Diseases of the prostate			1						1
127. Metritis						4			4
128. Uterine hemorrhage (nonpuerperal)						5			5
129. Tumor, uterine (noncancerous)						1			1
131. Cysts and other tumors of the ovary						1			1
133. Nonpuerperal diseases of the breast (cancer excepted)						2			

Mortuary report from September 1, 1903, to August 31, 1904—Continued.

Cause of death.	Americans.		Foreigners.		Filipinos.		Chinese.		Total.
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
VII. THE PUERPERAL STATE.									
134. Accidents of pregnancy						1			1
135. Puerperal hemorrhage						48			48
136. Other accidents of labor						1			1
137. Puerperal septicæmia		1		1		65		1	68
138. Albuminuria and puerperal eclampsia						13			13
140. Other puerperal accidents—sudden death						5			5
VIII. DISEASES OF THE SKIN AND CELLULAR TISSUE.									
143. Furuncle						1			1
144. Warm-acute abscess					1	1			2
IX. DISEASES OF THE ORGANS OF LOCOMOTION.									
146. Affections of the bones (nontuberculous)							1		1
147. Diseases of the joints (tuberculosis and rheumatism excepted)					1				1
X. MALFORMATIONS.									
150. Congenital malformations (stillbirths excepted)	1				2	4			7
XI. EARLY INFANCY.									
151. Congenital debility, icterus, and sclerema				2	214	158			374
152. Other special diseases of early infancy					38	37			75
153. Lack of care					2				2
XII. OLD AGE.									
154. Senile debility			1		63	101			165
XIII. AFFECTIONS PRODUCED BY EXTERNAL CAUSES.									
157. Suicide by hanging or strangulation					1		1		2
159. Suicide by firearms	1	1							2
164. Fractures	2				1				3
166. Other accidental traumatism	3		2		21	5	3		34
167. Burns					4	6	2	1	13
171. Electrical shocks					2				2
172. Accidental submersion					21	4	6		31
173. Inanition						2			2
174. Inhalation of deleterious gases (suicide excepted)					3				3
175. Other acute poisonings					1	1			2
176. Other external violence					5	2	1		8
XIV. ILL-DEFINED DISEASES.									
177. Dropsy					1	1	1		3
179. Unspecified or ill-defined causes of death		1			7	7	3		18
(64) One male, race unknown; (172) three males, race unknown; (179) two males, race unknown; one Filipino, sex unknown									7
Total	34	7	44	17	5,463	4,733	451	25	10,781
Grand total	41		61		10,196		476		10,781

Deaths occurring in Bilibid Prison from September 1, 1903, to August 31, 1904.

[These deaths are included in yearly report.]

Cause of death.	Presidio.			Carcel.					Total.
	Filipinos.		Chinese, male.	Americans.		Filipinos.		Chinese, male.	
	Male.	Female.		Male.	Female.	Male.	Female.		
Intermittent fever and malarial cachexia						1			1
Malarial cachexia	3					1			4
Variola	4								4
Cholera, Asiatic	2					4			6
Dysentery	19					9	1		29
Beri-beri	1					3	1		5
Tuberculosis of lungs	51	1	1	2		17			72
Tuberculosis, abdominal	1					1			2
Generalized tuberculosis	2								2
Syphilis						1			1
Cancer and other malignant tumors of the stomach and liver	1								1
Cancer and other malignant tumors of other organs and organs not specified	1					1			2
Leukæmia						1			1
Chronic poisonings						1			1
Insanity						3			3
Other diseases of the nervous system	1								1
Pericarditis						1			1
Acute endocarditis	2					2			4
Organic disease of the heart							1		1
Pneumonia	59					35		1	95
Other diseases of the respiratory system	1								1
Affections of the stomach (cancer excepted)						1			1
Diarrhea and enteritis, chronic	1								1
Cirrhosis of the liver	1								1
Simple peritonitis (puerperal excepted)	1					1			2
Acute nephritis	2								2
Bright's disease	4				1	6			11
Calculi of the urinary tract	1								1
Diseases of the urethra, urinary abscess, etc						1			1
Warm-acute abscess	1								1
Senile debility	5					2			7
Suicide by hanging or strangulation	1								1
Fractures						1			1
Other accidental traumatism	1					1			2
Other external violence						1			1
Unspecified or ill-defined causes of death	1								1
Total	167	1	1	2	1	95	3	1	271

Births reported from September 1, 1903, to August 31, 1904.[1]

Race.	Males.	Females.	Total.
Americans	37	24	61
Filipinos	3,232	2,950	6,182
Spaniards	22	18	40
Other Europeans	8	7	15
Chinese	27	11	38
All others	4	1	5
Total	3,330	3,011	6,341

[1] Incomplete.

Annual birthrate per thousand for the year.

Americans	13.89
Filipinos	32.57
Spaniards	15.82
Other Europeans	13.42
Chinese	1.79
All others	5.58
Average	28.83

Report of prescriptions filled at the municipal dispensaries from September 1, 1903, to August 31, 1904.

Health district.	Americans, adults, male.	Foreigners.		Filipinos.				Chinese, adults, male.	Total.
		Adults, male.	Children, male.	Adults.		Children.			
				Male.	Female.	Male.	Female.		
No. 1, San Nicolas	1			372	212	108	70	2	765
No. 2, Tondo	13			947	898	199	198		2,250
No. 3, Quiapo		2		513	614	268	157	1	1,555
No. 4, Santa Cruz				491	304	123	107		1,025
No. 5, Sampaloc		1		1,244	720	588	304		2,857
No. 6, Intramuros				310	369	156	86		921
No. 7, Ermita, Paco, etc	4		11	703	712	525	397		2,352
Total	18	3	11	4,580	3,824	1,967	1,319	3	11,725

Report of sick and wounded city poor attended by municipal physicians from September 1, 1903, to August 31, 1904.

Health district.	Physician.	Foreigners.			Filipinos.			
		Adults, male.	Children.		Adults.		Children.	
			Male.	Female.	Male.	Female.	Male.	Female.
No. 1, San Nicolas	Dr. V. Cavanna				96	72	44	30
	Dr. P. Herrera				39	34	21	13
No. 2, Tondo	Dr. V. Pantoja	[1]1			306	345	91	91
No. 3, Quiapo	Dr. P. Gabriel	5			163	228	106	89
No. 4, Santa Cruz	Dr. C. Reyes	1			165	186	73	56
No. 5, Sampaloc	Dr. F. Castañeda				322	436	285	207
No. 6, Intramuros	Dr. R. Perramon	2			105	115	73	72
	Dr. F. Herrera				16	21	4	5
	Dr. V. Cavanna				59	79	38	37
No. 7, Ermita, etc	Dr. C. Mora	1			67	91	63	86
	Dr. J. B. Cabarrus	1	4	[1]1	181	179	139	121
Total		11	4	1	1,519	1,736	887	807

Health district.	Physician.	Chinese.		Total.	Cured.		Deaths.		Number of visits.
		Adults, male.	Children, male.		Male.	Female.	Male.	Female.	
No. 1, San Nicolas	Dr. V. Cavanna			242	57	57	18	9	1,285
	Dr. P. Herrera	2		109	26	27	5	2	511
No. 2, Tondo	Dr. V. Pantoja	2		836	270	287	59	57	3,105
No. 3, Quiapo	Dr. P. Gabriel	1		592	161	185	40	57	1,215
No. 4, Santa Cruz	Dr. C. Reyes	3		484	148	119	34	33	2,096
No. 5, Sampaloc	Dr. F. Castañeda		1	1,201	241	305	92	89	2,749
No. 6, Intramuros	Dr. R. Perramon			367	110	118	24	17	1,019
	Dr. F. Herrera			46	8	19	1		145
	Dr. V. Cavanna			213	47	70	9	10	943
No. 7, Ermita, etc	Dr. C. Mora			308	49	56	47	53	705
	Dr. J. B. Cabarrus			626	187	186	58	52	1,620
Total		3	1	4,974	1,304	1,429	387	379	15,393

[1] American.

Burials from September 1, 1903, to August 31, 1904.

Cemetery.	Number.	Cemetery.	Number.
Loma (Government)	6,606	Chinese	524
Norte (Government)	288	Santa Ana	272
Paco General (Government)	291	American National Cemetery	34
Santa Cruz	66	San Pedro Macati	12
Balic-balic	1,520	Sampaloc	5
Tondo	2	Cathedral	1
Binondo	192	Crematory	204
Maytubig	590	Embalmed and shipped	11
Malate	585		
Pandacan (Romano)	389	Total	11,627
Pandacan (Filipino)	35		

Disinterments from September 1, 1903, to August 31, 1904.

Cemetery.	Number.	Cemetery.	Number.
Paco General (Government)	99	Malate	5
Norte (Government)	1	Tondo	5
Binondo	4	Chinese	229
Santa Cruz	72		
Sampaloc	8	Total	420
Balic-balic	2		

Report of crematories from September 1, 1903, to August 31, 1904.

Disposition.	Crematory.			Total.
	Palomar.	Santa Cruz.	Paco.	
Animals cremated:				
American horses	38	61	144	243
American mules	16	13	25	54
Australian horses	16	11	18	45
Filipino horses	169	284	776	1,229
China horses	7	11	21	39
China mules	14	1	9	24
Cows	230	157	282	669
Carabaos	37	39	387	463
Calves	31	31	12	74
Goats	42	17	69	128
Dogs	1,727	261	153	2,141
Cats	1,072	259	96	1,427
Rats	144,295	62,537	2	206,834
Monkeys	11	73	9	93
Fowls	6,670	973	135	7,778
Domestic birds	71	54	9	134
Ducks	170			170
Pigs	1,638	461	108	2,207
Deer	12	14	3	29
Raven			1	1
Sheep	3	6	9	18
Tortoises		2		2
Total	156,269	65,265	2,268	223,802
Loads cremated:				
House garbage	25,746	7,998	11,800	45,544
Trade refuse	3,064	496	550	4,110
Organic matter	670	121	144	935
Waste	2,298	287	1,437	4,021
Market refuse	3,404	682	185	4,272
Condemned goods	1,358	111	21	1,490
Beach refuse	7	7		14
Manure	52			52
Hemp cotton	8			8
Rubbish	243		459	702
Other refuse	266	164	580	1,010
Old sacks	3			3
Total	37,119	9,866	15,176	62,161

Report of operations of the pail-conservancy system from September 1, 1903, to August 31, 1904.

PAILS CLEANED.

Month.	Private houses.	Public buildings.	Public closets.	Provisional collections.	Mariquina.	Total.
1903.						
September	24,266	2,660	10,783	3,409	5,927	47,045
October	25,293	2,518	10,222	3,574	6,121	47,728
November	23,587	2,661	9,387	3,558	5,915	45,108
December	23,514	2,872	9,025	3,568	6,130	45,109
1904.						
January	24,280	3,111	9,156	3,689	6,090	46,326
February	22,660	3,196	8,908	3,466	5,700	43,930
March	24,204	3,338	9,670	3,796	6,070	47,078
April	23,990	3,653	9,690	3,760	6,000	47,093
May	24,922	3,937	10,018	3,943	6,200	49,020
June	24,526	3,903	13,020	826	6,000	48,275
July	26,442	4,129	14,570	60	4,200	49,401
August	28,780	4,024	20,860	62	----------	53,726
Total	296,464	40,007	135,304	337,716	64,353	569,844

VAULTS CLEANED.

Month.	Odorless excavators.		Public scavengers.	
	Vaults cleaned.	Loads removed.	Permits issued.	Barrels removed.
1903.				
September	10	205	204	2,448
October	15	187	242	3,228
November	10	100	208	2,747
December	25	171	226	2,686
1904.				
January	29	209	305	3,809
February	20	258	217	3,421
March	47	267	220	2,471
April	32	257	240	2,688
May	36	332	279	3,082
June	49	327	295	3,559
July	46	499	250	3,369
August	97	549	111	1,473
Total	416	3,306	2,797	34,981

General inspections of houses, premises, and vaults, with improvements ordered by medical inspectors, chief sanitary inspectors, and sanitary inspectors, from September 1, 1903, to August 31, 1904.

Houses inspected by chief sanitary inspectors	29,227
Houses reinspected for verification of work ordered	6,716
Houses inspected by sanitary inspectors	255,924
Houses reinspected by sanitary inspectors	116,451
Houses ordered cleaned (written)	69
Houses ordered cleaned (verbal)	54,361
Houses cleaned	49,511
Houses ordered whitewashed and painted	397
Houses whitewashed and painted	235
Houses disinfected	3,076
Number of houses recommended condemned and removed	337
Number of houses condemned and removed	115
Number of localities where "squatters" are located	266

General inspections of houses, premises, and vaults, etc.—Continued.

Number of samples of water sent to laboratory	4
Number of reports from same	3
Number of houses where garbage has not been removed for two days	1,194
Number of persons reported sick to municipal physicians	2,512
Cesspools and vaults ordered cleaned	2,854
Cesspools cleaned	2,199
Yards ordered cleaned	22,169
Yards cleaned	19,079
Yards ordered repaired (repaved, etc.)	322
Yards repaired	300
Number of cholera cases reported by sanitary inspectors	82
Number of cholera cases reported by auxiliary advisory board	82
Number of cholera cases found "alive"	171
Number of cholera cases found "dead"	266
Number of orders issued during the year	3,326
Number of orders complied with during the year	3,267
Number of orders awaiting action	2,231
Number of orders pending in court	85
Average number of food tiendas in districts	1,422
Number of persons convicted for violation of food-prohibition order	42
Average in visiting each street and barrio during the year	108
Average number of regular inspectors on duty	27.6
Average number of emergency inspectors on duty	0.8
Number of leper cases sent to San Lazaro Hospital	32
Number of plague cases reported	95
Number of smallpox cases reported	70
Houses in which traps are set	179,350
Houses in which bane is placed	15,035
Traps set	470,439
Plates with ratsbane placed	48,977
Rats caught by rat catchers	165,926
Rats caught by traps	134,875
Rats caught by poison	343
Rats purchased	1,840
Average number of rat catchers employed	68

Report of disinfections from September 1, 1903, to August 31, 1904.

Causes for disinfection.	Number of disinfections.	Number of contacts.
Cholera	407	1,503
Plague	98	514
Smallpox	68	486
Glanders	86	5
Hydrophobia	1	
Leprosy	9	16
Tumor	1	14
Surra	35	
Typhoid fever	2	1
Pseudo-farcy	3	
Consumption	4	
Lymphangitis	8	
Rinderpest	24	
Destruction of mosquitoes	375	
Insanitary condition	364	
Bedbugs	1	
Total	1,486	2,539

Vaccine virus distributed by the Board of Health from September 1, 1903, to August 31, 1904.

Month.	United States Army.	United States Navy.	United States Public Health and Marine-Hospital Service.	Inhabitants of the Philippine Islands (Manila not included).	Used by public vaccinators and other institutions in the city of Manila.	Philippines Constabulary.	Sold to the public.	Total.
September	4,905	----------	2,000	47,510	16,220	----------	265	70,900
October	2,420	----------	6,000	18,200	11,800	----------	70	38,490
November	3,050	500	8,000	28,100	16,220	----------	50	55,920
December	3,180	----------	5,100	73,500	13,300	----------	95	95,175
January	3,030	25	4,000	141,200	12,200	----------	60	160,515
February	3,060	----------	4,000	168,800	16,435	200	375	192,860
March	----------	----------	----------	196,115	20,650	----------	----------	216,765
April	----------	----------	----------	178,910	20,200	----------	----------	199,110
May	----------	----------	----------	137,300	14,200	----------	----------	151,500
June	----------	----------	----------	113,100	48,875	----------	----------	161,975
July	----------	----------	----------	118,000	133,900	----------	----------	251,900
August	----------	----------	----------	210,000	70,200	----------	----------	280,200
Total	19,685	525	24,100	1,430,735	398,600	200	915	1,869,710

Detailed report of vaccine virus distributed by the Board

Island and province.	September.	October.	November.	December.	January.	February.
Island of Bohol:						
Province of Bohol	2,000		2,000	3,000	8,000	2,000
Island of Cebu:						
Province of Cebu	2,000	5,000	200	6,000	5,000	5,000
Island of Jolo:						
Province of Jolo						
Island of Leyte:						
Province of Leyte	3,000	2,000	6,000		1,000	
Island of Luzon:						
Province of—						
Abra						
Albay	2,300	3,400	5,000		1,000	
Bataan	10				2,000	1,000
Batangas					2,500	9,000
Benguet		2,000		200		5,000
Bontoc	2,200	600		5,600		1,000
Bulacan	1,000		2,000	1,000	7,000	10,500
Cagayan	10,000	1,000			5,000	6,000
Ambos Camarines			200			3,000
Cavite			2,000	1,000	8,000	8,000
Ilocos Norte	600			1,200	10,000	10,000
Ilocos Sur				1,000	1,000	5,000
Isabela					3,000	
La Laguna					3,000	7,600
Nueva Ecija	2,000	1,000	7,500	4,500	4,000	4,500
Nueva Vizcaya					4,000	4,000
Pampanga	1,200	200	700		8,600	8,500
Pangasinan	1,000	1,500	1,600	3,700	3,000	6,100
Rizal	1,000				6,000	9,600
Sorsogon			1,000		2,500	
Tarlac	1,000			3,000	6,000	8,000
Tayabas	2,000	1,500		10,000	13,000	
Union	8,000			7,000	2,000	4,000
Zambales					5,000	
City of Manila:						
Public vaccinators	16,000	11,500	16,000	13,000	12,000	10,000
Other institutions	220	300	230	300	200	435
Island of Marinduque:						
Province of Marinduque						
Island of Masbate:						
Province of Masbate					300	
Island of Mindanao:						
Province of Misamis	8,000			22,300	15,300	9,000
Province of Moro						5,000
Province of Surigao					3,000	
Island of Mindoro:						
Province of Mindoro						
Island of Negros:						
Province of Occidental Negros						14,000
Province of Oriental Negros				2,000	2,000	1,000
Island of Panay:						
Province of Antique					8,000	2,000
Province of Capiz						
Province of Iloilo						
Island of Romblon:						
Province of Romblon						
Island of Samar:						
Province of Samar					5,000	16,000
Sold and issued to public institutions:						
Medical Supply Depot, United States Army	4,905	1,920	3,550	3,180	3,030	3,050
United States Naval Station, Cavite		500			25	
United States Public Health and Marine-Hospital Service	2,000	6,000	3,000	5,100	4,000	4,000
Philippines Constabulary						200
Cash sales	265	70	50	90	60	375
Total	70,900	38,490	50,920	95,175	160,515	192,860

of Health from September 1, 1903, to August 31, 1904.

March.	April.	May.	June.	July.	August.	Total.
4,000	6,400	6,300	----------	----------	----------	28,700
16,000	5,000	10,000	----------	55,000	75,000	184,200
----------	----------	1,000	3,000	----------	----------	4,000
----------	----------	----------	1,000	----------	----------	12,000
1,500	500	4,000	2,000	----------	----------	8,000
10,000	10,000	----------	3,000	3,000	----------	87,900
2,015	2,500	1,500	1,500	----------	5,000	15,525
12,500	7,500	5,000	5,000	----------	----------	41,500
4,000	----------	----------	1,100	----------	200	12,500
----------	2,000	----------	----------	----------	----------	11,400
6,000	4,010	6,000	5,000	----------	3,000	44,510
2,000	7,000	12,000	3,000	58,000	105,000	204,000
2,000	9,000	7,000	8,000	----------	----------	29,200
6,000	7,500	4,000	3,000	----------	500	40,000
10,000	----------	----------	5,000	----------	2,000	44,800
5,000	2,500	2,000	4,000	----------	----------	20,500
----------	5,000	2,000	1,000	----------	----------	11,000
6,000	6,000	3,000	3,000	----------	1,000	29,600
6,000	7,500	7,500	1,500	----------	----------	46,000
2,000	4,000	----------	----------	----------	----------	14,000
14,000	8,000	6,000	6,000	----------	100	58,800
6,000	8,000	6,000	6,000	----------	4,000	48,800
18,000	3,000	6,000	1,000	----------	1,000	41,200
2,000	----------	----------	4,000	2,000	----------	11,500
6,000	11,000	8,000	3,000	1,000	1,000	48,000
10,500	9,500	3,000	----------	6,000	----------	50,000
8,000	4,000	8,000	----------	----------	----------	41,000
1,000	2,000	2,000	----------	----------	----------	10,000
20,000	20,000	12,000	44,000	183,000	70,000	383,500
600	200	2,200	4,975	300	200	10,100
----------	----------	----------	2,500	----------	3,000	5,500
3,000	9,000	3,000	2,000	----------	----------	17,300
5,000	5,000	----------	4,500	----------	2,000	71,100
----------	----------	----------	----------	----------	----------	5,000
----------	----------	1,500	4,000	2,000	2,000	12,500
----------	----------	----------	----------	----------	----------	----------
8,000	6,000	10,000	11,000	1,000	4,000	54,000
4,000	6,000	6,500	4,000	----------	----------	24,500
----------	----------	----------	3,000	----------	----------	18,000
----------	10,000	----------	5,000	----------	----------	15,000
10,000	5,000	----------	----------	----------	1,200	16,200
----------	3,000	3,000	2,000	500	----------	8,500
10,000	3,000	5,000	5,000	----------	----------	44,000
----------	----------	----------	----------	----------	----------	19,685
----------	----------	----------	----------	----------	----------	525
----------	----------	----------	----------	----------	----------	24,100
----------	----------	----------	----------	----------	----------	200
----------	----------	----------	----------	----------	----------	915
216,765	199,110	151,500	161,975	251,300	280,200	1,869,710

Report of vaccinations, city of Manila, from September 1 to August 31, 1904.

Month.	No. 1, San Nicolas.	No. 2, Tondo.	No. 3, Quiapo.	No. 4, Santa Cruz.	No. 5, Sampaloc.	No. 6, Intramuros.	No. 7, Ermita, Paco, etc.	Total.
September	1,293	755	1,807	994	693	583	1,288	7,413
October	1,572	824	1,619	1,477	770	742	1,481	8,435
November	1,405	879	1,387	844	1,061	666	1,289	7,531
December	1,815	653	1,418	716	710	712	1,382	7,406
January	1,361	670	779	612	1,018	611	1,399	6,450
February	1,407	642	660	628	667	559	1,604	6,167
March	2,338	2,537	1,069	824	915	775	4,793	13,251
April	2,630	1,712	783	1,679	1,624	841	788	10,057
May	2,411	2,194	592	984	1,228	861	935	9,205
June	17,580	306	105	311	316	26	84	18,728
July	5,580	26,066	--------	--------	--------	1,888	--------	33,534
August	--------	5,696	689	16,140	713	48	--------	23,286
Total	39,392	42,934	10,908	25,209	9,715	8,312	14,993	151,463

Report of smallpox, city of Manila, from September 1, 1903, to August 31, 1904.

BY NATIONALITY.

Nationality.	Cases.		Deaths.	
	Male.	Female.	Male.	Female.
Americans	19	2	7	2
Filipinos	35	12	14	6
Foreigners	2	1	2	--------
Chinese	2	--------	1	--------
Total	58	15	24	8

BY DISTRICT.

Health district.	Cases.	Deaths.
Health District No. 1, San Nicolas	8	3
Health District No. 2, Tondo	16	7
Health District No. 3, Quiapo	9	5
Health District No. 4, Santa Cruz	18	10
Health District No. 5, Sampaloc	2	2
Health District No. 6, Intramuros	15	4
Health District No. 7, Ermita	5	1
Total	73	32

BY AGE.

Age.	Cases.	Deaths.
Under 1 year	3	2
1 year to 10 years	14	9
10 years to 20 years	16	5
20 years to 30 years	22	11
30 years to 40 years	8	2
40 years to 50 years	4	1
50 years and over	--------	--------
Unknown	6	2
Total	73	32

Report of plague, city of Manila, from September 1, 1903, to August 31, 1904.

BY NATIONALITY.

Nationality.	Cases.		Deaths.	
	Male.	Female.	Male.	Female.
American	1		1	
Filipinos	38	14	38	12
Foreigners	5	1	4	
Chinese	35		32	
Total	79	15	75	12

BY DISTRICT.

Health district.	Cases.	Deaths.
Health District No. 1, San Nicolas	47	42
Health District No. 2, Tondo	12	12
Health District No. 3, Quiapo	2	2
Health District No. 4, Santa Cruz	15	14
Health District No. 5, Sampaloc	2	2
Health District No. 6, Intramuros	14	13
Health District No. 7, Ermita	2	2
Total	94	87

BY AGE.

Age.	Cases.	Deaths.
Under 1 year		
1 year to 10 years	12	11
10 years to 20 years	24	23
20 years to 30 years	26	25
30 years to 40 years	16	12
40 years to 50 years	8	8
50 years and over	4	4
Unknown	4	4
Total	94	87

Reports received of lepers living in the various provinces of the Philippine Islands.

[Corrected to August 31, 1904.]

Province.	Race.	Number of males.	Number of females.	Children.		Single.		Married.		Widowers.	Widows.	Total.
				Male.	Female.	Male.	Female.	Male.	Female.			
Abra	Filipino	6	3	1		5	2		1			9
Albay	do	23	22	3	4	14	12	5	3	1	3	45
Ambos Camarines	do	77	27	6	2	36	14	29	8	6	3	104
Antique	do	59	49	13	14	20	15	20	15	6	5	108
Bataan	do	10	2		1	9		1			1	12
Batangas	do	18	11			14	4	3	4	1	3	29
Benguet[1]	Igorrote	32	11	1	1	1		21	10	9		43
Bohol	Filipino	78	55	5	3	34	39	35	12	4	1	133
Bulacan	do	20	13			6	8	12	5	2		33
Cagayan	do	46	50	1		22	16	19	21	4	13	96
Capiz	do	37	15	1		18	10	16	5	2		52
Cavite	do	35	22			27	17	7	2	1	3	57
Cebu	do	675	377									1,052
Ilocos Norte	do	76	38			25	18	43	12	8	8	114
Ilocos Sur	do	137	77	12	2	62	44	45	18	18	13	214
Iloilo	do	82	29	5	2	44	12	24	7	9	8	111
Isabela	do	9	4			3		4	2	2	2	13
La Laguna	do	16	9	1	2	6	3	6	1	3	3	25
Lepanto-Bontoc[1]	do	15	4	1		5	1	8		1	3	19

---

[1] Revised reports not received.

Reports received of lepers living in the various provinces, etc.—Continued.

Province.	Race.	Number of males.	Number of females.	Children.		Single.		Married.		Widowers.	Widows.	Total.
				Male.	Female.	Male.	Female.	Male.	Female.			
Leyte[1]	Filipino	50	41	1	3	26	27	20	7	3	4	91
Masbate	do	8	3	1		3	1	2	2	2		11
Mindanao[1]	Moro	143	77	3	3	86	44	45	18	9	12	220
Misamis	Filipino	39	13	2		20	7	14	3	3	3	52
Negros Occidental	do	22	8	2	2	9	6	10		1		30
Negros Oriental[1]	do	72	44	6	2	27	23	32	14	7	5	116
Nueva Ecija	do	40	19	1		19	9	15	5	5	5	59
Nueva Vizcaya	do	2	4			1		1	2		2	6
Pampanga	do	11	7			3	5	6	2	2		18
Pangasinan	do	33	25		1	11	5	18	15	4	4	58
Rizal	do	41	17	1	1	23	10	16	6	1		58
Romblon	do	9	5			2	2	6	2	1	1	14
Samar[1]	do	52	40	13	6	15	11	21	18	3	3	92
San Lazaro Hospital	do	133	92	23	11	72	45	26	19	12	17	225
Sorsogon	do	83	34		1	41	18	38	6	4	9	117
Surigao[1]	do		1								1	1
Tarlac	do	22	8			7	5	14	3	1		30
Tayabas	do	12	7			2	3	9	2	1	2	19
Union	do	33	18			10	11	20	7	3		51
Zambales[1]	do	60	35	2		30	15	24	15	4	5	95
Total		2,316	1,316	105	63	758	462	635	272	143	142	3,632

[1] Revised reports not received.

Reports received of insane persons living in the various provinces of the Philippine Islands to August 31, 1904.

Province.	Race.	Number of males.	Number of females.	Children.		Single.		Married.		Widowers.	Widows.	Total.
				Male.	Female.	Male.	Female.	Male.	Female.			
Abra	Filipino	19	9			11	3	6	2	2	4	28
Albay	do	18	19	2		8	12	5	3	3	4	37
Ambos Camarines	do	69	62	1	4	49	41	15	10	4	7	131
Antique	do	33	27			23	13	9	14	1		60
Bataan	do	12	8			6		5	4	1	4	20
Batangas	do	56	73	2	1	36	44	13	15	5	13	129
Bohol	do	279	280	11	7	209	212	50	45	9	16	559
Bulacan	do	37	17			25	7	9	6	3	4	54
Capiz	do	34	38		1	18	17	13	11	3	9	72
Cavite	do	31	23			22	8	7	10	2	5	54
Cebu	do	447	333	11	3	324	260	95	65	17	15	780
Ilocos Norte	do	53	37	2	1	40	28	8	5	3	3	90
Ilocos Sur	do	93	57	1		63	40	23	10	6	7	150
Iloilo	do	97	94			63	49	25	20	9	25	191
Isabela	do	9	7			5	3	4	3		1	16
La Laguna	do	71	72	3	5	45	40	17	18	6	9	143
Lepanto-Bontoc	do	10	7			6	6	3		1	2	17
Masbate	do	18	20	1	1	12	12	4	4	1	3	38
Mindoro	do	9	7			8	4	1	2		1	16
Misamis	do	70	66	1		51	35	14	17	4	14	136
Negros Occidental	do	41	31		1	32	13	6	9	3	8	72
Nueva Ecija	do	30	17			24	11	5	4	1	2	47
Nueva Vizcaya	do	4	5			4	1		3		1	9
Pampanga	do	31	35			24	19	7	12		4	66
Pangasinan	do	93	86	6	5	45	44	26	22	16	15	179
Rizal	do	42	27			23	16	16	7	3	4	69
Romblon	do	22	5			7	2	12	3	3		27
Samar	do	32	28			23	20	4	4	5	4	60
Sorsogon	do	86	65			66	40	16	19	4	6	151
Tarlac	do	9	7			6	5	3			2	16
Tayabas	do	111	89	5	1	89	70	12	7	5	11	200
Union	do	32	15	1		18	9	12	4	1	2	47
Zambales	do	9	17			7	7	2	1		9	26
Total		2,007	1,683	47	30	1,392	1,080	447	359	121	214	3,690

Report of cholera, city of Manila, from September 1, 1903, to August 31, 1904.

BY NATIONALITY.

Nationality.	Cases.		Deaths.	
	Male.	Female.	Male.	Female.
Americans	10		8	
Filipinos	257	174	234	162
Foreigners	8		5	
Chinese	18	2	18	1
Total	293	176	265	163

BY DISTRICT.

Health district.	Cases.	Deaths.
Health District No. 1, San Nicolas	32	75
Health District No. 2, Tondo	185	126
Health District No. 3, Quiapo	31	28
Health District No. 4, Santa Cruz	102	90
Health District No. 5, Sampaloc	32	32
Health District No. 6, Intramuros	27	21
Health District No. 7, Ermita	60	56
Total	469	428

BY AGE.

Age.	Cases.	Deaths.
Under 1 year	1	1
From 1 year to 10 years	50	47
From 10 years to 20 years	70	67
From 20 years to 30 years	165	147
From 30 years to 40 years	81	73
From 40 years to 50 years	54	48
From 50 years and over	42	40
Unknown	6	5
Total	469	428

Epidemic of cholera in the provinces of the Philippine Islands from September 1, 1903, to August 31, 1904.

Province.	Cases.	Deaths.	Province.	Cases.	Deaths.
Antique	429	312	Leyte	84	58
Ambos Camarines	1	4	Marinduque	373	373
Bataan	236	155	Misamis	141	83
Batangas	84	71	Nueva Ecija	132	102
Bohol	216	165	Negros Occidental	1,106	827
Bulacan	104	84	Pangasinan	168	95
Cagayan	147	84	Rizal	37	23
Cavite	45	35	Surigao	224	215
Capiz	340	225	Tarlac	200	144
Cebu	4,083	3,420	Tayabas	5	5
Ilocos Norte	7	14	Union	28	26
Ilocos Sur	63	39	Zambales	46	32
Iloilo	325	253			
Isabela	50	26	Total	8,747	6,924
La Laguna	78	49			

Epidemic of cholera in the provinces of the Philippine Islands from April 1, 1902, to August 31, 1904.

Province.	Cases.	Deaths.	Province.	Cases.	Deaths.
Abra	88	47	Masbate	497	291
Albay	1,142	1,049	Negros Occidental	8,564	2,553
Antique	2,485	1,798	Negros Oriental	1,136	861
Bataan	1,267	917	Nueva Ecija	1,905	1,514
Batangas	3,433	2,718	Nueva Vizcaya	1	1
Benguet	1	1	Pampanga	1,209	860
Bohol	2,706	1,877	Panay	69	39
Bulacan	1,828	1,363	Pangasinan	7,771	5,478
Cagayan	980	672	Rizal	1,260	757
Camarines (Ambos)	1,408	1,045	Rizal (Fort William McKinley)	3	3
Capiz	4,650	3,016	Romblon	200	74
Cavite	876	684	Samar	1,391	1,345
Cebu	14,210	9,933	Sorsogon	542	255
Ilocos Norte	1,694	1,228	Surigao	1,022	749
Ilocos Sur	1,584	1,067	Tarlac	986	718
Iloilo	26,427	19,095	Tayabas	376	246
Isabela	82	43	Union	3,874	2,883
Jolo	26	21	Zambales	2,161	1,412
La Laguna	2,981	2,399	Zamboanga	273	136
Leyte	1,445	1,098	Miscellaneous	52,522	31,505
Marinduque	608	532			
Mindanao	69	36	Total	160,671	105,075
Mindoro	308	279			
Misamis	4,621	2,477			

Epidemic of cholera in the city of Manila and provinces from March 20, 1902, to August 31, 1904.

Month.	Manila.		Provinces.	
	Cases.	Deaths.	Cases.	Deaths.
1902.				
March	108	90		
April	586	406	1,927	1,417
May	550	442	2,407	1,631
June	601	492	5,204	4,097
July	1,368	1,053	7,757	5,807
August	720	581	11,247	7,874
September	273	179	43,346	27,410
October	87	57	30,837	18,572
November	336	236	12,353	6,681
December	35	24	5,918	3,583
1903.				
January	7	4	4,921	2,757
February	2	1	2,997	2,009
March	6	6	1,903	1,124
April	33	27	1,772	1,147
May	230	212	1,402	885
June	39	38	3,554	2,945
July	42	38	4,167	2,606
August	89	72	10,212	7,406
September	290	263	4,613	3,672
October	127	118	2,531	1,969
November	31	26	1,119	937
December	14	13	364	270
1904.				
January	4	5	35	24
February	3	3	61	42
March			23	10
April			1	
Total	5,581	4,386	160,671	105,075

Report of veterinary division of the Board of Health for the Philippine Islands from September 1, 1903, to August 31, 1904.

[JOHN G. SLEE, *Chief, Veterinary Division.*]

On arrival in city:	
Number of cattle inspected	39, 513
Number of hogs inspected	45, 474
Number of carabaos inspected	3, 991
Number of sheep inspected	818
Number of goats inspected	602
Number of horses inspected	3, 764
Number of other animals inspected	141
Total	94, 303
In Government abattoir:	
Number of cattle slaughtered	26, 277
Number of hogs slaughtered	62, 314
Number of sheep slaughtered	677
Number of goats slaughtered	31
Total	89, 299
Number of cattle condemned and cremated	68
Number of hogs condemned and cremated	218
Number of horses condemned for glanders	165
Number of horses condemned for surra	42
Number of carabaos condemned for surra	103
Number of other animals condemned	375
Total	971

VACCINATION FORMS.

CITY OF MANILA.

[Red.]

BOARD OF HEALTH FOR THE PHILIPPINE ISLANDS.

CITY OF MANILA.

Sanitary Station-----------------------------, Register No---------------

Name, --

Address, ---

Sex, $\left\{\begin{matrix}\text{male}\\ \text{female}\end{matrix}\right\}$; Age, $\left\{\begin{matrix}\text{adult}\\ \text{child}\end{matrix}\right\}$ was vaccinated ------------------------, 190--

--,
Vaccinator, Board of Health.

[NOTE.—This card to be retained until success of vaccination has been determined by an inspector of vaccinations.

[White.]

BOARD OF HEALTH FOR THE PHILIPPINE ISLANDS.

CITY OF MANILA.

Sanitary Station-----------------------------, Register No---------------

Name, --

Address, ---

Sex, $\left\{\begin{matrix}\text{male}\\ \text{female}\end{matrix}\right\}$; Age, $\left\{\begin{matrix}\text{adult}\\ \text{child}\end{matrix}\right\}$ was unsuccessfully vaccinated --------------

----------------------, 190--

Revaccination is required.

--,
Inspector of Vaccinations.

NOTE.—This card must be retained by the person to whom issued.

[Blue.]

BOARD OF HEALTH FOR THE PHILIPPINE ISLANDS.

CITY OF MANILA.

Sanitary Station........................., Register No...............

Name, ...

Address, ...

Sex, {male / female}; Age, {adult / child} was successfully vaccinated...............

...................., 190..

....,
Inspector of Vaccinations.

NOTE.—This card must be kept by the person to whom issued as evidence of successful vaccination.

Form B. of H. 57.

Record of vaccinations performed and inspected.

Page...... SANITARY STATION............, CITY OF MANILA. Page......

Consecutive numbers of the persons vaccinated.	Names of persons vaccinated.	Address, street and number, of persons vaccinated.	Date of vaccination.	Evidence or not of previous successful vaccination.	Age of persons vaccinated, adult or child.	Sex of person vaccinated.	Date of inspection of vaccination.	Result of vaccination, successful or not.	Remarks.

....

....
Vaccinators, Board of Health.

..........................,
Inspector of Vaccinations.

[ENGLISH.]

Form B. of H. 58. No______

DEPARTMENT OF THE INTERIOR.

BOARD OF HEALTH FOR THE PHILIPPINE ISLANDS.

DIVISION OF VACCINATION.

Extract from Municipal Board Ordinance No. 4, for the city of Manila.

* * * * * * *

SEC. 8. It shall be the duty of every person in said city to be successfully vaccinated at intervals of one year. Every person in said city exposed to the infection of smallpox (including varioloid) shall at once be vaccinated successfully or vaccinated a sufficient number of times at intervals of two weeks to render it evident that successful vaccination is impossible. (See also Act 309, providing for the compulsory vaccination of the inhabitants of the Philippine Islands.

MANILA, P. I.,______________________________, 190

____

____

You are requested to have yourself and those under your direction vaccinated within ______ days from this date.

An inspector from this office will call to verify the vaccination and issue the prescribed certificate card.

____

____

Form B. of H. 58. No__________

____________, 190

Residence ____________________

____

Person in charge ______________

____

Men________ Women_______

Boys________ Girls__________

Time expires __________________

REMARKS.

____

____

____

____

MANILA, P. I., ______, 190

I hereby acknowledge that I have received an official notice from the Board of Health to comply with the law governing vaccination.

____

____

[SPANISH.]

Form B. of H. 58. No------

DEPARTAMENTO DEL INTERIOR.

JUNTA DE SANIDAD DE LAS ISLAS FILIPINAS.

DIVISIÓN DE VACUNACIÓN.

Extracto tomado de la Ordenanza No. 4, de la Junta Municipal de la Ciudad de Manila.

* * * * * * *

ART. 8. Será obligación de toda persona en dicha ciudad ser vacunada eficazmente á intervalos de un año. Toda persona en dicha ciudad expuesta á la infección de viruela (incluso varioloide) será vacunada eficazmente ó vacunada un número suficiente de veces á intérvalos de dos semanas hasta que se haga evidente que la vacunación eficaz es imposible. (Véase también la Ley 309 haciendo obligatoria la vacunación de todos los habitantes de las Islas Filipinas.)

MANILA, I. F., ------------------, 190

---- --------------------------

Se suplica á V. que se vacune y haga vacunar á los que están á su cargo dentro de los días ------ de esta fecha.

Un inspector de esta oficina hará una visita para comprobar la vacunación y expedir la tarjeta-certificado prescrita.

Form B. of H. 58. No----------

----------------, 190

Domicilio ----------------------

Persona encargada ----------

Hombres ------ Mujeres ------

Niños ---------- Niñas ------

Plazo termina en -----------

OBSERVACIONES.

MANILA, I. F., ----, 190

Por la presente manifiesto haber recibido una notificación oficial de la Junta de Sanidad para cumplir con las leyes que rigen la vacunación.

Form B. of H. 66.

DEPARTMENT OF THE INTERIOR.

BOARD OF HEALTH FOR THE PHILIPPINE ISLANDS.

MANILA.

MANILA, P. I., ----------------------, 190

Sir: I have the honor to submit the following summary of the work of vaccination performed
Señor: Tengo el honor de someter el siguiente resumen de los trabajos de vacunación verificados

in Health District No---------- during the period of ----- hours ending at 5 o'clock p. m. on--------
en el Distrito Sanitario No. durante el plazo de horas que termina á las cinco de la tarde del

	Number of persons vaccinated. Número de personas vacunadas.		
	Previously vaccinated. Anteriormente vacunadas.	Not previously vaccinated. No vacunadas anteriormente.	Total.
Children under 1 year Párvulos menores de un año.			
Children between 1 and 2 years Párvulos de 1 á 2 años.			
Children between 2 and 5 years Párvulos de 2 á 5 años.			
Children between 5 and 12 years Párvulos de 5 á 12 años.			
Adult males Varones mayores de 12 años.			
Adult females Mujeres mayores de 12 años.			
Total			

Very respectfully,
Muy respetuosamente,

----------------------------------,
Vaccinator.
Vacunador.

Form B. of H. 65.

DEPARTMENT OF THE INTERIOR.

BOARD OF HEALTH FOR THE PHILIPPINE ISLANDS.

MANILA.

MANILA, P. I.,______________________________, 190

____

____

Sir: I have the honor to submit the following summary of the work of inspection of
Señor: Tengo el honor de someter el siguiente resumen de los trabajos de inspección de

vaccinations performed in Health District No.______________during the period of________________
vacunas verificadas en el Distrito Sanitario No. durante el período de

hours ending at 5 o'clock p. m. on____
horas que termina á las cinco de la tarde del

	Number of persons inspected. Número de personas inspeccionadas.				
	Previously vaccinated. Anteriormente vacunadas.		Not previously vaccinated. No vacunadas anteriormente.		Total.
	Positive. Positivo.	Negative. Negativo.	Positive. Positivo.	Negative. Negativo.	
Children under 1 year Párvulos menores de un año.					
Children between 1 and 2 years Párvulos de 1 á 2 años.					
Children between 2 and 5 years Párvulos de 2 á 5 años.					
Children between 5 and 12 years Párvulos de 5 á 12 años.					
Adult males Varones mayores de 12 años.					
Adult females Mujeres mayores de 12 años.					
Total					

Very respectfully,
Muy respetuosamente,

____,
Inspector of Vaccinations.
Inspector de Vacunas.

PROVINCIAL FORMS.

DEPARTMENT OF THE INTERIOR.

BOARD OF HEALTH FOR THE PHILIPPINE ISLANDS.

OFFICE OF THE COMMISSIONER.

MANILA.

Mr ____________________________

Manila, P. I.

SIR: You are hereby appointed a provincial vaccinator in this Bureau at a salary of ₱59, Philippine currency, per month, with reimbursement of expenses for your actual and necessary transportation for travel performed under proper orders. Receipts of such expenses for transportation should be taken in duplicate and submitted in duplicate to this office on Auditor's Form 115, properly sworn to. No additional compensation or allowance for subsistence will be made.

In case you are stationed temporarily in Manila for a period of more than five days, compensation for the whole of said period shall be at the rate of ₱40 per month, without allowance for subsistence on reimbursement.

This appointment does not entitle you to any of the privileges of the civil service.

Very respectfully,

____________________________,
Commissioner of Public Health

Approved, effective ____________________________

____
Secretary of the Interior.

[Red.]

BOARD OF HEALTH FOR THE PHILIPPINE ISLANDS.

JUNTA DE SANIDAD DE LAS ISLAS FILIPINAS.

Province of ____________________
Provincia de

Municipality of ____________________ Register No ________
Municipio de No. de Registro

Name ____
Nombre

	male		adult		right	arm
Sex	varón	Age	adulto	was vaccinated on the	el brazo	derecho
Sexo	female	Edad	child	fué vacunado en	left	leg
	mujer		párvulo		la pierna	izquierda

on ______________________________, 190
el

______________________________,
Vaccinator, Board of Health.
Vacunador de la Junta de Sanidad.

NOTE.—This card to be retained until success of vaccination has been determined by an inspector of vaccinations.

NOTA.—Esta tarjeta deberá ser conservada hasta que los resultados de la vacuna sean determinados por un inspector de vacunación.

[White.]

BOARD OF HEALTH FOR THE PHILIPPINE ISLANDS.

JUNTA DE SANIDAD DE LAS ISLAS FILIPINAS.

Province of ....
Provincia de

Municipality of .... Register No ....
Municipio de No. de Registro

Name ....
Nombre

	male		adult	was unsuccessfully	right	arm
Sex	varón	Age	adulto	vaccinated on the	el brazo	derecho
Sexo	female	Edad	child	fué vacunado sin re-	left	leg
	mujer		párvulo	sultado alguno en	la pierna	izquierda

on ...., 190

Revaccination is required.
Necesita revacunarse.

....
Inspector of Vaccinations.
Inspector de Vacunación.

NOTE.—This card must be retained by the person to whom issued.

NOTA.—Esta tarjeta deberá ser conservada por la persona á quien es expedida.

[Blue.]

BOARD OF HEALTH FOR THE PHILIPPINE ISLANDS.

JUNTA DE SANIDAD DE LAS ISLAS FILIPINAS.

Province of ....
Provincia de

Municipality of .... Register No ....
Municipio de No. de Registro

Name ....
Nombre

	male		adult	was successfully vac-	right	arm
Sex	varón	Age	adulto	cinated on the	el brazo	derecho
Sexo	female	Edad	child	fué vacunado con re-	left	leg
	mujer		párvulo	sultados en	la pierna	izquierda

on ...., 190
el

....................................,
Inspector of Vaccinations.
Inspector de Vacunación.

NOTE.—This card must be kept by the person to whom issued as evidence of successful vaccination.

NOTA.—Esta tarjeta deberá ser conservada por la persona á quien es expedida como prueba de que ha sido bien vacunada.

Form B. of H. 60.
Junta de Sanidad, Modelo 60.

Record of vaccinations performed and inspected.
Registro de vacunaciones practicadas y examinadas.

Page ------ MUNICIPALITY OF --------------, PROVINCE OF -------------- Page ------
Página Municipio de Provincia de Página

1	2	3	4	5	6	7	8	9	10
Consecutive numbers of the persons vaccinated. Número consecutivo de las personas vacunadas.	Names of persons vaccinated. Nombres de las personas vacunadas.	Location of vaccination. Lugar de la vacuna.	Date of vaccination. Fecha dē la vacuna.	Evidence or not of previous successful vaccination. Hay marcas ó nó de una vacunación anterior eficaz.	Age of person vaccinated. Edad de la persona vacunada.	Sex of person vaccinated. Sexo de la persona vacunada.	Date of inspection of vaccination. Fecha de la inspección de la vacuna.	Result of vaccination successful or not. Resultados de la vacuna, buenos ó nó.	Remarks. Observaciones.

---------------------------,

---------------------------, ---------------------------,
Vaccinators, Board of Health. *Inspector of Vaccinations.*
Vacunadores, Junta de Sanidad. Inspector de Vacunaciones.

Form B. of H. 61.
Junta de Sanidad, Modelo 61.

MUNICIPALITY OF ---------------------------
Municipio de

PROVINCE OF ---------------------------
Provincia de

---------------------------, *190* .

PRESIDENT PROVINCIAL BOARD OF HEALTH,
Presidente de la Junta Provincial de Sanidad,

Province of ---------------------------
Provincia de

(Through the President Municipality of ---------------------------)
(Por conducto del Presidente del Municipio de

SIR: The undersigned have the honor to inform you that the work of vaccination in this munic-
SEÑOR: Los abajos firmantes tienen el honor de participar á V. que los trabajos de vacunación en este

ipality was begun on the ----------- of ---------------------, and has been concluded this date,
municipio comenzaron el de y han sido terminados en esta fecha,

all available persons having been vaccinated.
habiendo sido vacunadas todas las personas que hubo disponibles.

The following summary of the data contained in the vaccination records of the municipality,
Se somete adjuntamente el siguiente sumario de datos que constan en los registros del municipio,

transmitted this date to the municipal secretary for file, is herewith submitted:
que han sido entregados en esta fecha al secretario municipal para ser archivados:

I. Population of the municipality Población del municipio	
II. Total number of persons vaccinated in the municipality Número total de personas vacunadas en el municipio	
III. Number showing evidence of previous successful vaccination Número de los que presentaban marcas de una vacunación anterior eficaz	
IV. Number not showing evidence of previous successful vaccination Número de los que no presentaban marcas de una vacunación anterior eficaz	
V. Total adults vaccinated Total de adultos vacunados	
VI. Total children vaccinated Total de párvulos vacunados	
VII. Total males vaccinated Total de hombres vacunados	
VIII. Total females vaccinated Total de mujeres vacunadas	
IX. Total number of persons vaccinated by each vaccinator Número total de personas vacunadas por cada vacunador	

In compliance with orders from your office, dated ____________________, 190 , the undersigned
En cumplimiento con las órdenes de su oficina fechadas los abajo firmantes

proceeded on ____________________ to the municipality of ____________________
tes se dirigieron el al municipio de

for the purpose of ____________________
con el objeto de

Very respectfully,
Muy respetuosamente,

____

____________________,
Vaccinators, Board of Health for the Philippine Islands.
Vacunadores de la Junta de Sanidad de las Islas Filipinas.

____

____
Vaccinators, Board of Health
Vacunadores, Junta de Sanidad
for the Philippine Islands.
de las Islas Filipinas.

____________________, 190

Forward report of vaccination performed
Remiten el parte de vacunaciones

by them in the municipality of ____________________
hechas por ellos en el municipio de

____________________, Province of
Provincia de

____

between the dates of ____________________, 190 ,
entre las fechas de

and ____________________, 190
y

[First indorsement.]
[1er. endoso.]

Municipality of ____________________
Municipio de

Province of ____________________
Provincia de

____________________, 190

Respecfully forwarded to the president
Respetuosamente remitido al presidente

provincial board of health, Province of
de la junta provincial de sanidad, Provincia de

____

The information set forth herein is be-
La información aquí con-

lieved to be ____________________
tenida se cree ser

____

The services and conduct of the within-
La conducta y servicios de los vacunado-

named vaccinators while in this munici-
res aquí nombrados, mientras estaban en este

pality have been ____________________
municipio, han sido

____

____________________,
Municipal President.
Presidente Municipal.

Form B. of H. 62.
Junta de Sanidad, Modelo 62.

MUNICIPALITY OF__________________,
Municipio de

PROVINCE OF__________________,
Provincia de

__________________190 .

To the PRESIDENT OF THE PROVINCIAL BOARD OF HEALTH,
Al Presidente de la Junta Provincial de Sanidad,

*Province of*__________________
Provincia de

(Through the president municipality of__________________)
(Por conducto del presidente del municipio de

SIR: I have the honor to inform you that the work of inspection of vaccinations performed in
Señor: Tengo el honor de participar á V. que los trabajos de inspección de vacunaciones practica-

this municipality by__________________
das en este municipio por

____

has been concluded by me this date, all persons vaccinated by them having been inspected as far
han sido terminados por mí en esta fecha, habiendo sido examinadas todas las personas vacunadas

as possible.
por ellos que fueron posibles.

The following summary of the data contained in the vaccination records of the municipality, re-
Se somete adjuntamente el siguiente sumario de datos que constan en los registros del municipio,

turned this date to the municipal secretary for file, is herewith submitted:
que han sido devueltos en esta fecha al secretario municipal para ser archivados:

I.	Total number of persons vaccinated, as shown by vaccination record of municipality Número total de personas vacunadas según consta en los registros de vacunación del municipio	
II.	Total number of vaccinated persons inspected as to success of vaccination Número total de personas vacunadas examinadas del resultado de las vacunaciones	
III.	Total vaccinations found to be successful Total de vacunas que dieron resultados	
IV.	Total vaccinations found to be unsuccessful Total de vacunas que no dieron resultados	
V.	Number of persons inspected who have been previously successfully vaccinated Número de personas examinadas que fueron anteriormente vacunadas con resultados	
VI.	Total vaccinations successful in persons previously successfully vaccinated Total de vacunas eficaces en personas anteriormente vacunadas con resultados	
VII.	Total vaccinations unsuccessful in persons previously successfully vaccinated Total de vacunas ineficaces en personas anteriormente vacunadas con resultados	
VIII.	Total adults successfully vaccinated Total de adultos vacunados con resultados	
IX.	Total children successfully vaccinated Total de párvulos vacunados con resultados	

The vaccine virus used appears to be of__________________character;
La linfa vacuna usada parece ser de naturaleza

the work of vaccination appears to have been__________________performed.
los trabajos de vacunación parecen haber sido practicados

In compliance with orders from__________________, dated
En cumplimiento con las órdenes de fechadas

__________________190 , I proceed on__________________, 190 ,
me dirijo el

to the municipality of__________________, for the purpose of
al municipio de con el objeto de

____

Very respectfully,
Muy respetuosamente,

__________________,

Inspector of Vaccination, Board of Health for the Philippine Islands.
Inspector de Vacunación, Junta de Sanidad de las Islas Filipinas.

....
Inspector of Vaccination, Board of Health for the P. I.
Inspector de Vacunación, Junta de Sanidad de las I. F.

...., 190

Forwards report of inspections made by him
Remite el parte de inspecciones hechas por él

in the municipality of ------------------------
en el municipio de

Province of ------------------------------------
Provincia de

between the dates of-------------------, 190 ,
entre las fechas de

and --------------------------------, 190 .
y

[First indorsement.]
[1er. endoso.]

Municipality of ------------------------------
Municipio de

Province of -----------------------------------
Provincia de

...., 190

Respectfully forwarded to the president,
Respetuosamente remitido al presidente

provincial board of health, Province of
de la junta provincial de sanidad, Provincia de

....

The information set forth herein is believed to be
La información aquí contenida

lieved to be -----------------------------------
se cree ser

The services and conduct of the within
La conducta y servicios del

inspector of vaccination while in this municipality have been
inspector de vacunación, mientras estaba en

nicipality have been ---------------------------
este municipio, han sido

....
Municipal President.
Presidente Municipal.

Board of Health Form 59.
Junta de Sanidad, Modelo 59.

Consolidated report of vaccinations and inspections of vaccinations performed in the Province of ____________ *during the period* ______________, *190*__, *to*______________, *190*
Estado general de vacunaciones é inspecciones de vacunaciones practicadas en la Provincia de ***en el período de*** ***á***

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Names of municipalities in which vaccinations were performed. Nombres de los municipios en que se practicaron las vacunaciones.	Names of vaccinators or presidents of municipal boards of health performing vaccinations in the municipality. Nombres de los vacunadores ó presidentes de juntas municipales de sanidad que practicaron las vacunaciones en el municipio.	Names of inspectors of vaccination or presidents of municipal board of health making inspections of vaccinations. Nombres de los inspectores de vacunación ó presidentes de juntas municipales de sanidad que hicieron las inspecciones de las vacunaciones.	Date of completion of vaccination work in the municipality. Fecha en que se terminaron los trabajos de vacunación en el municipio.	Date of completion of inspection of vaccinations performed in the municipality. Fecha en que se terminaron las inspecciones de vacunaciones practicadas en el municipio.	Total number of persons vaccinated. Número total de personas vacunadas.	Total number vaccinated showing evidence of previous successful vaccination. Número total de vacunados que presentaban marcas de una vacunación anterior eficaz.	Total number of persons vaccinated not showing evidence of previous successful vaccination. Número de vacunados que no presentaban marcas de una vacunación anterior eficaz.	Total adults vaccinated. Total de adultos vacunados.	Total children under 14 years of age vaccinated. Total de personas vacunadas menores de 14 años.	Total males vaccinated. Total de hombres vacunados.	Total females vaccinated. Total de mujeres vacunadas.	Total persons inspected as to success of vaccination. Total de personas examinadas del resultado de las vacunaciones.	Total successful vaccinations. Total de vacunas que dieron resultados.	Total unsuccessful vaccinations. Total de vacunas que no dieron resultados.	Total persons inspected who had been previously successfully vaccinated. Total de personas examinadas que fueron anteriormente vacunadas con resultados.	Total vaccinations successful in persons previously successfully vaccinated. Total de vacunas eficaces en personas anteriormente vacunadas con resultados.	Total vaccinations unsuccessful in persons previously successfully vaccinated. Total de vacunas ineficaces en personas anteriormente vacunadas con resultados.	Total adults successfully vaccinated. Total de adultos vacunados con resultados.	Total children successfully vaccinated. Total de párvulos vacunados con resultados.	Quality of virus reported. Naturaleza de la linfa, según se haya participado.	Conduct of officials. Conducta de los empleados.	Average daily number of vaccinations and inspections of vaccinations performed by each vaccinator and inspector. Promedio diario de vacunaciones é inspecciones de vacunación practicadas por cada vacunador é inspector.
Total,																						

____,
____,
President Provincial Board of Health.
Presidente de la Junta Provincial de Sanidad.

Province of ____
Provincia de

REPORT OF CHIEF HEALTH INSPECTOR FOR PERIOD FROM SEPTEMBER 1, 1903, TO SEPTEMBER 1, 1904.

OFFICE OF THE CHIEF HEALTH INSPECTOR,
Manila, P. I., September 1, 1904.

SIR: I have the honor to submit herewith report for the year beginning September 1, 1903, and ending September 1, 1904.

The organization of this division as recorded in the last annual report has undergone certain changes; however, the policy then pursued with reference to enforcing sanitation and combating communicable diseases, together with method of procedure, has continued practically without interruption and the result accomplished has been, on the whole, satisfactory.

HEALTH STATIONS AND DISTRICTS IN MANILA.

As recorded in the last annual report, seven health stations remain in operation in Manila, each controlling a health district. During the year it has been advantageous to remove Stations C, I, and L to more suitable quarters and Stations C and L to locations where it was possible to secure adjoining accommodations for municipal free dispensaries Nos. 2 and 3. Station I also was removed to the lower part of Sampaloc native police station, which is occupied without rent.

The operation of sanitary stations continued without interruption until January 30, 1904, on which date 38 sanitary inspectors (Filipinos) were discharged. Sufficient force did not remain to inspect the city properly. After this reduction there remained only 1 district chief sanitary inspector and 2 sanitary inspectors at three stations and 1 district chief sanitary inspector and 1 sanitary inspector at four stations. Pending the assignment of police as sanitary inspectors, which it was understood to be the intention of the Commission to do, little general inspection could be accomplished until April 22, 1904, when 14 native police were detailed with the Board of Health as sanitary police, 2 of whom were assigned to each of the seven stations.

The present locations of health stations are as follows:

Station A (San Nicolas), Health District No. 1, at 74 Calle San Fernando. This station occupies a part of the river and harbor police station without rent.

Station C (Tondo), Health District No. 2, at 132 Calle Azcarraga.

Station F (Quiapo), Health District No. 3, at 60 Calle Santa Rosa.

Station G (Santa Cruz), Health District No. 4, at 581 Calle Bilibid.

Station I (Sampaloc), Health District No. 5, at 45 Calle Bustillos. This station occupies part of Sampaloc native police station without rent.

Station J (Intramuros), Health District No. 6, at 69 Calle Victoria. This station occupies a room in Santa Potenciana Building without rent.

Station L (Malate), Health District No. 7, at 288 Calle Herran. This station controls Ermita, Malate, Paco, Pandacan, and Santa Ana.

Sanitary work accomplished, by health stations, during the year.

Nature of work.	Station.							Total.
	A.	C.	F.	G.	I.	J.	L.	
Houses inspected by Chief Sanitary Inspector	5,952	782	2,395	6,752	2,983	5,293	4,070	29,227
Houses inspected, verification of work	498	882	568	1,725	867	1,822	850	6,716
Houses inspected by sanitary inspectors	49,907	55,506	38,206	37,686	32,270	17,123	25,226	255,924
Houses reinspected by sanitary inspectors	7,370	17,862	10,104	8,442	9,991	55,784	6,898	116,451
Houses ordered cleaned (written)	--------	4	3	11	27	11	13	69
Houses ordered cleaned (verbal)	6,389	18,182	7,102	5,091	6,825	7,761	3,011	54,361
Houses cleaned	6,389	16,413	6,788	4,746	5,562	7,761	1,852	49,511
Houses ordered whitewashed or painted	101	37	68	62	58	17	44	397
Houses whitewashed or painted	79	14	42	39	20	13	28	235
Houses disinfected	118	214	202	1,871	80	393	198	3,076
Houses recommended to be condemned or removed	14	165	101	21	35	--------	1	337
Houses condemned and removed	1	--------	61	11	42	--------	--------	115
Houses garbage not removed for two days	--------	1	--------	12	97	284	800	1,194
Orders complied with	2,281	72	192	171	161	186	204	3,267
Orders awaiting action	305	115	415	386	254	288	468	2,231
Orders pending in court	--------	2	--------	9	60	4	10	85
Cesspools and vaults ordered cleaned	70	50	704	1,074	739	53	164	2,854
Cesspools and vaults cleaned	71	41	665	914	407	56	45	2,199
Yards ordered cleaned	1,619	5,082	2,270	3,239	3,729	3,103	3,127	22,169
Yards cleaned	1,619	4,627	2,221	2,709	2,989	3,103	1,811	19,079
Yards ordered repaired (repaved, etc.)	138	2	39	67	10	20	51	322
Yards repaired	123	1	14	60	16	43	43	300
Cholera cases reported by sanitary inspectors	22	22	--------	1	5	31	1	82
Cholera cases found "alive"	27	56	13	28	9	22	16	171
Cholera cases found "dead"	40	80	22	53	24	9	38	266
Plague cases reported	48	12	3	15	2	13	2	95
Smallpox cases reported	3	15	9	17	4	17	5	70
Leper cases sent to San Lazaro Hospital	2	12	2	8	6	2	--------	32
Orders issued during the year	2,270	88	171	166	228	176	227	3,326
Samples of water, foods, etc., to laboratories	--------	1	--------	1	--------	2	--------	4
Reports from laboratories	--------	1	--------	--------	--------	2	--------	3
Convictions for violation of food order	--------	1	1	8	32	--------	--------	42
Persons reported sick by municipal physicians	7	835	4	--------	909	630	127	2,511

Rats caught by rat catchers during the year.

Month.	Station.							Total.
	A.	C.	F.	G.	I.	J.	L.	
1903.								
September	4,272	2,734	5,570	3,521	2,303	856	578	19,933
October	4,682	5,011	5,111	2,099	2,818	890	1,217	21,928
November	4,986	4,166	3,924	2,035	1,842	1,206	1,392	19,551
December	6,642	6,547	3,238	2,429	2,066	2,342	1,374	24,638
1904.								
January	7,082	11,300	1,736	2,442	3,358	3,299	1,888	31,105
February	7,147	11,448	1,256	2,618	3,735	2,803	1,651	30,658
March	8,190	6,532	1,655	2,173	8,697	3,209	1,983	32,400
April	9,574	5,276	2,761	2,581	11,510	4,957	2,856	39,515
May	4,907	4,490	2,350	2,235	5,388	3,578	2,987	25,935
June	3,273	4,192	2,219	2,327	2,553	2,466	1,468	18,498
July	3,146	1,953	2,475	812	1,040	786	495	10,707
August	4,883	4,511	1,847	2,315	1,910	2,466	1,670	19,602
Total	68,883	68,160	34,142	27,587	47,220	28,958	19,529	294,479

Cases detected and disposed of, by health stations, during the year.

STATION A, HEALTH DISTRICT NO. 1.

Disease.	1903.				1904.								
	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	Total.
Cholera	52	21	6	1		2							82
Plague	2	2			5	4	8	7	9	2	2	8	44
Smallpox	2			2				3	1				8
Leprosy	1	1											2
Total													136

STATION C, HEALTH DISTRICT NO. 2.

Disease.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	Total.
Cholera	92	29	8	4	1	1							135
Plague	2	1					2		1			2	8
Smallpox							3	3	5	1	1	1	14
Leprosy		1	1	1	1	1			3	3		1	12
Total													169

STATION F, HEALTH DISTRICT NO. 3.

Disease.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	Total.
Cholera	18	11	1		1								31
Plague								1				1	2
Smallpox			2	1	1		1		3			1	9
Leprosy			1							1			2
Total													44

STATION G, HEALTH DISTRICT NO. 4.

Disease.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	Total.
Cholera	68	23	5	6									102
Plague			2	2	2	3	1	2	3				15
Smallpox		1	1	1			2	8	2	2	2	1	20
Leprosy					3	1	1	1		1		1	8
Total													145

STATION I, HEALTH DISTRICT NO. 5.

Disease.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	Total.
Cholera	18	12	1		1								32
Plague							1		1				2
Smallpox							1					1	2
Leprosy			1				4		1				6
Total													42

STATION J, HEALTH DISTRICT NO. 6.

Disease.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	Total.
Cholera	11	12	3	1									27
Plague					3		1	5	3				12
Smallpox					1		3	2	7	2	2		17
Leprosy	2										1		3
Insane	4	4	4	4	4	4	5	5	5	5	6	4	54
Total													113

STATION L, HEALTH DISTRICT NO. 7.

Disease.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	Total.
Cholera	31	19	7	2	1								60
Plague							2						2
Smallpox								2	2	1	1		6
Total													68

VACCINATING SERVICE.

With a view to eradicating smallpox infection from the Philippine Islands, an effort was made to secure sufficient vaccinators to vaccinate the entire inhabitants of the Islands within a period sufficiently brief to control the spread of infection. Pending the receipt of this authority a careful and systematic scheme in the form of instructions was prepared and distributed to all city and provincial health officials. Meanwhile such vaccinators as had been allowed—viz, 100 for the provinces and 15 for Manila—were distributed to those provinces where there appeared to be the greatest need, and in Manila from one to three were assigned to each health district. Experience very shortly demonstrated that this small number was insufficient to control, much less suppress, smallpox dissemination; besides in the provinces great difficulty was experienced in securing correct reports from and through presidents of provincial boards of health.

After due consideration it was deemed best to modify the first-proposed system and take up the work systematically, concentrating the vaccinators and operating them in sections under a medical inspector of this Board.

The Manila work was first organized and begun and the Government officials and employees were first vaccinated in view of the fact that an unusual number of smallpox cases were then occurring in Manila. Then the health districts in Manila were taken up and are being vaccinated in their order, from one to seven. Already the districts of San Nicolas, Binondo, Tondo, Trozo, and part of Santa Cruz have been thoroughly covered, and the fact that 74,400 persons were properly vaccinated from June 7 to August 31, inclusive, indicates the advantage of this method. It is estimated that the entire city of Manila can be canvassed thoroughly by January 1, 1905.

The provincial work has been also organized and the work laid out contemplating the vaccination of all provinces except the Moro country. It is estimated that with the present force the first canvass can be completed within two and one-half years. The points selected for concentration and beginning work were Aparri (Cagayan) in the north and Cebu (Cebu) in the south. Forty vaccinators are operating in each province under the personal direction of medical inspectors detailed for the purpose. The twenty additional vaccinators allowed will be held in reserve in Manila to respond to calls at points where smallpox has appeared in provinces where vaccinators are not then operating; also to assist in vaccinating in and around Manila, and supplement, from time to time, the force operating in the provinces.

Thus it will be seen that by this method the difficulty heretofore experienced as to supplies (particularly vaccine virus), reports, and proper rendition of vouchers will be in the hands of only two medical inspectors who understand the requirements of this Bureau.

The order in which provincial vaccination will proceed as contemplated in instructions already published is as follows:

In Luzon—Cagayan, Isabela, Ilocos Norte, Ilocos Sur, Abra, Lepanto-Bontoc, Nueva Vizcaya, Benguet, La Union, Pangasinan, Nueva Ecija, Tarlac, Zambales, Bataan, Pampanga, Bulacan, Rizal, La Laguna, Cavite, Batangas, Tayabas, Infanta, Principe, Ambos Camarines, Albay, Sorsogon.

In the southern islands—Cebu, Bohol, Negros Oriental, Negros Occidental, Iloilo, Antique, Capiz, Romblon, Masbate, Leyte, Samar, Misamis, Surigao, Mindoro, Paragua (Cuyo).

The returns from the provinces as to vaccinations heretofore accomplished have been difficult to secure, and such as have been received are no doubt incorrect.

An effort is being made, however, to secure returns for the year ended August 31, 1904, which as yet has not been possible; therefore, a complete report can not be rendered. The new system, however, will enable us to render a prompt and reliable report of all work accomplished, together with results. In addition, it is our purpose to make a thorough canvass of the Islands, as to the number of insane and lepers, during the process of vaccination.

Vaccinations against smallpox accomplished in health districts in Manila, by health stations, during the year.

Month.	Station.							Total.
	A.	C.	F.	G.	I.	J.	L.	
1903.								
September	1,293	755	1,807	994	693	583	1,288	7,413
October	1,572	824	1,619	1,477	770	742	1,431	8,435
November	1,405	879	1,387	844	1,061	666	1,289	7,581
December	1,815	658	1,418	716	710	712	1,382	7,406
1904.								
January	1,361	670	779	612	1,018	611	1,399	6,450
February	1,407	642	660	628	667	559	1,604	6,167
March	2,838	2,537	1,069	824	915	775	4,793	13,251
April	2,680	1,712	783	1,679	1,624	841	788	10,057
May	2,411	2,194	592	984	1,228	861	985	9,205
June	17,580	306	105	311	316	26	84	18,728
July	5,580	26,066				1,888		33,534
August		5,696	689	16,140	713	48		23,286
Total	39,392	43,934	10,908	25,209	9,715	8,312	14,993	151,463

Report of vaccinations accomplished in Manila for the period from September 1, 1903, to June 7, 1904.

Item.	1903.				1904.						
	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	Total.
Vaccinations accomplished	7,413	8,435	7,581	7,406	6,450	6,167	13,251	10,057	9,205	1,564	77,479
Number of takes	1,749	1,752	1,684	1,357	946	1,178	2,288	2,417	2,359	371	16,101
Number of nontakes	5,664	6,683	5,847	6,049	5,504	4,989	10,963	7,640	6,846	1,193	61,378

Report of vaccinations accomplished in Manila from June 7 to August 31, 1904, inclusive, under the new system.

Item.	June.	July.	August.	Total.
Vaccinations accomplished	17,580	33,534	23,286	74,400
Number of takes	865	1,018	3,320	5,203
Number of nontakes	6,550	6,241	18,454	31,245

Total vaccinations accomplished in Manila during the year	151,879
Report of vaccinations accomplished in the provinces under the new system:	
July 23 to August, Province of Cagayan	36,248
July 14 to August 31, Province of Cebu	34,011
Total	222,138

Inoculations against bubonic plague.

PREVENTIVE (PROPHYLACTIC) SERUM.

Month.	Health district.														Total.	
	No. 1.		No. 2.		No. 3.		No. 4.		No. 5.		No. 6.		No. 7.			
	Primary.	Secondary.	Primary.	Secondary.	Primary.	Secondary.	Primary.	Secondary.	Primary.	Secondary.	Primary.	Secondary.	Primary.	Secondary.	Primary.	Secondary.
1903.																
September	1								23	37					24	37
October				1												1
November	289	163	391	346	159	98	971	655	34		31	31	256	138	2,131	1,421
December	828	289	216	170	121	74	547	442	22	50	2	2	269	252	1,505	1,279
1904.																
January	584	358	1	1									139	90	724	449
February	3	2													3	2
March			2	1									12		14	1
April					8		14								22	
May		1			1	1	7								8	2
Total	1,205	813	610	519	229	173	1,539	1,097	79	87	33	33	676	470	4,431	3,192

CURATIVE (ANTITOXINE) SERUM.

Date.	Health district.							Total.
	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.	No. 7.	
1904.								
January							11	11
March		2						2
April	20							20
May	34	3				20		57
June	5							5
July	27	29				4		60
August	37	9						46
Total	123	43				24	11	201

River and harbor work for the year in connection with Station A, Health District No 1.

Nature of work.	1903.				January, 1904.	Total.
	September.	October.	November.	December.		
Cascoes inspected	1,111	1,065	878	385	746	4,185
Lorchas inspected	397	552	306	117	230	1,602
Schooners inspected	135	149	61	53	83	481
Steamships inspected	12		28	75	67	182
Launches inspected	92	112	94	151	148	597
Fumigated	2	3	2	19	30	56
Trips made by Board of Health launch[1] to bay	58	46	46	52	53	255
Up the river	53	46	42	48	55	244

[1] The steam launch formerly rented by the Board of Health for this work was, for lack of funds, released January 31, 1904, and since that date no systematic inspection or disinfection has been made.

EXTERMINATION AND PREVENTION OF MOSQUITOES.

The work of exterminating and preventing mosquitoes through the methods of drainage, application of oil, etc., was begun July 18, 1904, with a view of determining what practical result could be accomplished in Manila if systematically conducted. Although Manila is low and badly drained, possessing numerous pools of stagnant water, it is believed that by securing the coöperation of household and property owners, which we are endeavoring to do, much good can be accomplished toward relieving the public from the discomfort, annoyance, and danger of malarial-fever infection which now exist. Already numerous mosquito-breeding places have been oiled and many others drained by the department of streets and parks on request of the Board of Health. This work will be continued until it can be definitely determined what practical results can be obtained.

Extermination and prevention of mosquitoes.

Station and month.	Quantity of oil used.	Area oiled.	Houses, yards, etc., inspected for mosquito larvæ.	Canals, pools, cesspools, wells, drains, etc., oiled.
Station A:	*Ounces.*	*Square feet.*		
July	914	----------	196	128
August	1,999	----------	200	485
Station C:				
July	4,248	----------	462	211
August	3,870	----------	621	149
Station F:				
July	3,800	95,000	822	77
August	14,720	314,500	995	----------
Station G:				
July	3,583	53,221	600	5
August	7,844	127,275	457	150
Station I:				
July	890	----------	724	195
August	750	----------	863	144
Station J:				
July	512	----------	261	492
August	1,947	----------	422	786
Station L:				
July	6,400	----------	372	60
August	4,800	----------	567	213
Total	55,827	589,996	7,562	3,095

MUNICIPAL PHYSICIANS.

The number of municipal physicians now employed to render medical attention to the poor and indigent remains the same. One is employed in each of the seven health districts.

During the year the service rendered by these men has increased as well as their general usefulness to the Government. This was accomplished by assigning them definitely to station and district work, consulting with them, and making them feel that they were a part of the district force. The result has been that an interest has been developed in their work never before realized. Besides, the assistance rendered by them in the study of infant mortality and in efforts directed to its reduction has been of much value. It is believed that the municipal physician is better known and more frequently called upon to-day by the poor and indigent than ever before.

The following table shows the work accomplished by municipal physicians for the year:

Municipal physicians report for the year.

Health district.	Number of visits.	Number of prescriptions.	Number of labor cases.	Number of wounds and accident cases.
No. 1	1,796	765	----------	11
No. 2	3,105	2,182	6	52
No. 3	1,215	1,555	1	14
No. 4	2,096	1,025	4	26
No. 5	2,749	2,857	1	9
No. 6	2,107	921	2	8
No. 7	2,325	2,287	----------	14
Total	15,393	11,592	14	129

NAMES AND ASSIGNMENT OF MUNICIPAL PHYSICIANS.

Dr. F. Herrera, Health District No. 1 (San Nicolas and Binondo).
Dr. V. Pantoja, Health District No. 2 (Tondo).
Dr. P. Gabriel, Health District No. 3 (Quiapo).
Dr. C. Reyes, Health District No. 4 (Santa Cruz and San Miguel).
Dr. F. Castañeda, Health District No. 5 (Sampaloc).
Dr. V. Cavana, Health District No. 6 (Intramuros).
Dr. J. B. Cabarrus, Health District No. 7 (Paco, Ermita, Malate, etc.).
Dr. Tee Han Kee, assigned to work among Chinese.

MUNICIPAL FREE DISPENSARIES.

The work accomplished by the municipal free dispensary in the district of Quiapo was so gratifying and the necessity for others so apparent that two additional dispensaries were established, one in the district of Tondo and the other in the district of Paco adjoining the health and sanitary stations of these districts. At first the poor and indigent looked upon these dispensaries with distrust, and for the first month very little was accomplished. Gradually, however, the purpose of the dispensary was demonstrated, confidence was established, and month by month since the number of poor and indigent have increased so that to-day, particularly during the morning hours, a large number of sick and injured may be found at the dispensaries receiving treatment from the district medical inspector and municipal physician. It is believed that the good to be accomplished through this means, in so far as establishing confidence among this class of people in the Board of Health goes, together with alleviating suffering and reducing mortality, is really just beginning.

Services rendered by municipal free dispensaries during the year.

Month.	Number of prescriptions filled by municipal physicians.			Number of persons to whom medicine was given.			Number of persons receiving surgical dressings.		
	No. 1 (Quiapo).	No. 2 (Tondo).	No. 3 (Paco).	No. 1 (Quiapo).	No. 2 (Tondo).	No. 3 (Paco).	No. 1 (Quiapo).	No. 2 (Tondo).	No. 3 (Paco).
1903.									
September	710	--------	--------	330	--------	--------	16	--------	--------
October	515	--------	--------	243	--------	--------	11	--------	--------
November	667	--------	--------	353	--------	--------	34	--------	--------
December	521	43	43	277	19	14	19	--------	1
1904.									
January	571	117	137	310	59	72	26	3	--------
February	371	145	201	180	71	100	16	4	1
March	345	168	197	173	75	92	12	9	1
April	403	229	244	183	81	93	27	11	6
May	641	319	179	208	113	61	25	18	4
June	631	386	216	254	140	71	15	25	--------
July	679	665	261	269	138	61	34	41	10
August	786	776	559	338	151	122	28	43	7
Total	6,840	2,848	2,037	3,118	847	686	263	154	30

Municipal free dispensaries Nos. 2 and 3 were opened in December, 1903.

Consolidated report of services rendered by municipal dispensaries during the year.

Month.	Number of prescriptions filled by municipal physicians.	Number of persons to whom medicine was given.	Number of persons receiving surgical dressings.
1903.			
September	710	330	16
October	515	248	11
November	667	358	34
December	607	310	20
1904.			
January	823	441	29
February	717	351	21
March	710	340	22
April	876	357	44
May	1,139	382	47
June	1,233	465	40
July	1,605	468	85
August	2,121	611	78
Total	11,725	4,651	447

Prescriptions filled from each district during the year.

Month.	Health district.							Total.
	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.	No. 7.	
1903.								
September	31	25	53	65	334	105	97	710
October	35	12	74	64	177	97	56	515
November	39	7	94	94	235	86	112	667
December	35	29	77	58	238	77	93	607
1904.								
January	21	92	113	105	276	81	72	760
February	18	127	95	81	165	30	201	717
March	18	150	119	43	170	13	197	710
April	33	196	131	68	181	23	244	876
May	56	263	188	107	229	117	179	1,139
June	22	365	195	79	292	64	216	1,233
July	214	451	214	130	261	74	261	1,605
August	243	533	202	131	299	154	624	2,186
Total	765	2,250	1,555	1,025	2,857	921	2,287	11,725

FREE MUNICIPAL MIDWIFE SERVICE.

The difficulty of keeping records of the services rendered by municipal midwives under the old régime led to their assignment as part of the personnel of health stations and their operation in health districts under the direction of the district medical inspectors and the municipal physicians.

The result has been that the number of births reported has increased from a few monthly to several hundred in some districts, and the number of births actually attended by midwives has also increased proportionately. This gives a better opportunity of studying the causes leading to the excessive infant mortality which has kept the general mortality of Manila at almost double what it normally should be.

The following table shows the work of the municipal midwife service for the year, together with the increase in birth reports following the changes made August 13, 1903:

District midwife report for the year.

Health district.	Number of midwives.	Number of births reported.	Number of births attended.
No. 1	1	263	129
No. 2	2	1,263	641
No. 3	1	142	84
No. 4	1	105	35
No. 5	1	250	164
No. 6	1	78	40
No. 7	1	240	19
Total	8	2,316	1,112

It will be seen by this report that the total number of births reported is small in comparison with the mortality report, and this, if true, would seem to indicate a gradual decrease in the population. However, it must be remembered that birth reports have not been forced, and could not be without a large number of domiciliary inspectors, and that there is every reason to believe that the number of births reported does not represent probably more than one-half of those occurring, as demonstrated by infant death reports and other developments caused by sanitary inspections and vaccinations. Granting then a birthrate of 53.72 per thousand in comparison with a death rate of 47.12 per thousand, the difference shows an average gain in the population of 6.60 per thousand.

The efforts directed toward reducing the excessive infant mortality in Manila, which averages approximately 50 per cent of all deaths, have so far proved gratifying. It is always difficult to inaugurate new methods among the Filipino people, and in order to do so successfully it is necessary first to gain their confidence. However, by careful and painstaking work it is believed that their confidence is being gained. There is probably no subject upon which these people have less knowledge than that of childbirth, as indicated by the mortality. Interfering as they do with the functions of nature, through ignorance, is largely the cause of the excessive infant mortality. This matter has been the subject of special study by the district medical inspectors for many months, and certain causes were discovered which it was thought could be remedied at least in part. First, it was found that to the improper treatment of the umbilical cord by the natives could be attributed a certain large percentage of deaths. To remedy this the umbilical packet containing sterilized dressings for the cord, with simple instructions as to its use, was introduced, first through the municipal midwife, then through the health stations and municipal free dispensaries. These packets are now meeting with favor and more than 300 per month are being distributed and used. The results so far as observed have been satisfactory. The second cause of an unnecessarily large percentage of mortality was found to be exposure of the new-born infant to atmospheric changes without proper protection. As the abdomen and chest were the vital parts concerned, an abdominal bandage of sufficient size to cover these parts was secured and issued in the same manner as the umbilical packet. These also are now in demand and have unquestionably accomplished much good.

In connection with the calculation of the relation of births to deaths, it became necessary to retake the census of certain districts in Manila. This was accomplished by concentrating all sanitary inspectors and vaccinators in the districts, subdividing the districts and assigning one man to each subdivision, then beginning systematically and finishing within a definite time, then changing the men and checking up the count. In the district of Paco, particularly, a considerable discrepancy was found between our count and that of the recent census, the increase being in favor of the Board of Health count. This increase is accounted for to some extent by the number of laborers and their families who have come in from the provinces to work on the electric railway now in course of construction.

The health-district population taken from the census as given below is believed to be much smaller than the true figures and gives an excessive mortality per thousand:

Health district:	
No. 1	53, 573
No. 2	39, 045
No. 3	18, 487
No. 4	43, 040
No. 5	20, 279
No. 6	17, 463
No. 7	28, 054
Total	219, 941

QUARANTINABLE DISEASES.

The reduction in the case number of quarantinable diseases in Manila is now becoming so small that they cease to become a factor in computing mortality. Especial attention is invited to the fact that during the past year the three principal quarantinable diseases have occurred only as follows, and in comparison with the preceding year shows a marked reduction, cholera having now disappeared:

Date.	Smallpox.		Bubonic plague.		Asiatic cholera.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
September, 1902, to September, 1903	101	17	198	166	1, 179	894
September, 1903, to September, 1904	73	82	94	87	469	428

SPECIAL INSPECTIONS.

In addition to the regular and systematic district inspections special inspections have been made of the cleaning and disposal of garbage, dead animals, night soil, contents of cesspools, and of the sanitation of houses, factories, mills, schools, prisons, dairies, markets, meat shops, bakeries, public water supplies, wells, cisterns, cemeteries, undertaking establishments, asylums, jails, barrooms, theaters, and all public institutions and places of public resort. Numerous insanitary conditions have been remedied as a result of these inspections, and on the whole it may be stated that the present sanitary condition of all such places is reasonably good. Three hundred and twenty-two complaints have been received from citizens of Manila as to the insanitary conditions in or near their residences, all of which have received prompt attention.

BILIBID PRISON.

The sanitary condition of this prison is probably as good as it could be under the circumstances.

The excessive number of prisoners and the fact that new prisoners from the provinces reach the institution usually in reduced physical condition make it impossible to maintain the mortality at a low figure.

As this report closes, the prison contains 4,476 prisoners—4,377 males and 99 females—and the morning sick report shows 42. The mortality for the year reaches the high figure of 70.95 per thousand.

SANITARY INSPECTION OF SCHOOLS.

In Manila there are 42 public schools and 71 private schools.

Of the public schools 15 are for boys. 13 for girls, and 14 for both. Very few of the buildings used for public schools are suitable for the purpose, most of them being devoid of the proper sanitary conveniences. These schools have an average attendance of 5,672 during the day and 4,377 during the night sessions.

Only one public school has a dormitory, and this is in a separate building. The health of these students, about fifty in number, is good. City water is used for drinking purposes in all public schools except five. Of these five two use sterilized water and three cistern water.

Of the 71 private schools 23 are for boys, 19 for girls, and 30 for both.

The number of pupils enrolled is approximately 6,647, and of these 648 reside in dormitories. Many sanitary improvements have been made in both schools and dormitories during the year, but there is much still to be done. The health of dormitory pupils is good, and seldom is a case of serious illness recorded.

In all private schools city water is used for drinking purposes except 13. Of these 13 five use cistern water, and one boiled water.

In both public and private schools intestinal disorders are reported to be rare.

Sanitary condition of public and private schools.

School.	Health district.							Total.
	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.	No. 7.	
Public schools:								
Boys	1	2		5			4	12
Girls				3			4	7
Mixed	1	4	3	3	1	1	5	18
Total	2	6	3	11	1	1	13	37
Pupils enrolled—								
Boys	60	342		1,470			1,008	2,880
Girls				490			341	831
Mixed	525	1,292	1,923	47	348		1,142	5,277
Total	585	1,634	1,923	2,007	348		2,491	8,988
Sanitary condition of buildings	[1]	[2]	[3]	[2]	[3]	[3]	[1]	
Drinking water—								
City	2	6	3	11	1	1	8	32
Sterilized							2	2
Cistern							3	3
Private schools:								
Boys	2	3	3	8		4	2	22
Girls		1	4	5		4	5	19
Mixed	2	7	2	9	7	2	1	30
Total	4	11	9	22	7	10	8	71
Pupils enrolled—								
Boys	119	189	422	333			586	1,649
Girls		147	373	274		541	716	2,051
Mixed	230	163	88	1,500	179	715	73	2,947
Total	349	498	883	2,107	179	1,256	1,372	6,647
Resident students—								
Boys		22	53	17			180	272
Girls			115				155	270
Mixed	23	48	28		4		3	106
Total	23	70	196	17	4		338	648
Health of students	[1]		[1]	[1]	[1]	[1]	[1]	
Sanitary condition of buildings	[1]	[3]	[3]	[2]	[1]	[1]	[1]	
Drinking water:								
City	3	11	6	19	7	6	6	38
Cistern			1			4		5
Filtered	1		2	2			2	7
Boiled				1				

[1] Good.

[2] Poor.

[3] Fair.

SANITARY INSPECTION OF PLACES OF BUSINESS BEFORE GRANTING LICENSES.

Certain applications for licenses to inaugurate new business and applications for renewal of licenses are referred to this division in order that the sanitary condition of the premises may be passed upon and a recommendation made as to the advisability of granting or refusing the application.

Through this means many of the extremely insanitary tiendas and other places have been denied the privilege of conducting a business. The property, therefore, remains vacant, and the owner soon sees the necessity for either rebuilding or placing the premises in a sanitary condition. The recommendations of this division as to the granting or refusal of license applications have been almost invariably supported by the Municipal Board.

Number of license applications acted on	912
Number approved	810
Number disapproved	102

SANITARY SUPERVISION OVER PUBLIC PROSTITUTES.

The examination of public prostitutes in the district of Sampaloc and Calle Ilang-Ilang for the purpose of detecting those having venereal diseases and their removal to San Lazaro Hospital has continued without interruption. This work is conducted systematically and thoroughly by the medical inspector of the district. However, the records for the present year show that there has been practically no reduction in the number found diseased upon weekly examination.

During the preceding year there were an average of 375 prostitutes in the district and an average of 1,046 examinations were made monthly. Of this number an average of 67 women were found diseased monthly and transferred to San Lazaro Hospital. These figures compared with those of the present year show that (practically) no decrease has occurred in the number of diseased cases during a two-year period.

This appears to be due to the system in vogue, in that the male sex is not subject to examination and the disease is continually transmitted. The chief health inspector is of the opinion that until prostitutes are placed in another locality and under such conditions that police and sanitary supervision over them can be made more perfect, and that all males desiring to enter this particular district shall be found upon examination free from disease, it will be impossible to accomplish permanent results from a sanitary standpoint.

Date.	Examinations.	Slides taken.	Women examined.	Women sent to San Lazaro Hospital.[1]	Gonorrhea cases.	Chancroid cases.	Syphilitic cases.
1903.							
September	1,497	1,497	408	75	71	4	--------
October	1,237	1,237	414	85	82	3	--------
November	1,414	1,414	399	81	77	4	--------
December	741	741	361	46	37	9	--------
1904.							
January	1,298	1,298	408	95	77	18	--------
February	1,155	1,155	372	82	71	11	--------
March	1,116	1,116	362	93	84	9	--------
April	915	915	295	108	72	30	1
May	1,154	1,154	356	93	61	31	1
June	1,106	1,106	361	68	54	14	--------
July	1,066	1,066	345	80	57	23	--------
August	1,002	1,002	315	70	58	12	--------
Total	13,795	13,795	4,796	971	800	168	2

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[1] The number of cases transferred to San Lazaro hospitals as recorded in this report differs somewhat from the report of the Hospital for two reasons—first, certain cases were transferred for examination only; second, others were transferred from other sources.

SAN LAZARO HOSPITALS.

This institution has made continued improvement since the rendition of the last annual report, and is now operating upon a basis more satisfactory than ever before. The opening of the new infectious-disease wards on February 10, 1904, marked an epoch in health work in the Philippine Islands which has already been far-reaching in its effect. On this date the buildings, complete and ready for occupancy, were thrown open to the public for inspection, a notice to that effect having been previously sent out. Special effort was made to have all Spanish and Filipino physicians in Manila inspect the hospital. The results were most gratifying. More than 500 people responded to the invitation, and expressions of approval mingled with those of great surprise were heard on every hand complimentary as to the arrangement and equipment of the institution.

The day following the public opening the cases on hand in the old building outside the inclosure were transferred over, and since that date the new institution has been able to well subserve the purpose for which it was intended.

American trained nurses.—Probably no single item of improvement has equaled that demonstrated by the inauguration of the service of American trained female nurses at the opening of the new infectious-disease wards. Under proper authority the services of one chief nurse and five nurses were secured, special care being exercised in their selection. Their duties are confined to the new infectious-disease hospital and the women's department, and the services rendered by them have been of the highest order. Also the training by them of the Filipino and Japanese nurses in the women's department has resulted most beneficially and has given a smoothness and refinement to this department which it never before enjoyed.

The work rendered by the hospital for the year is given below condensed for comparison:

Consolidated report of San Lazaro Hospital, morgue, crematory, and disinfecting plant.

LEPER DEPARTMENT.

Status.	1903.				1904.								Total.
	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	
Cases on hand	202	202	204	208	207	206	213	218	218	221	224	227	------
Cases received	4	4	5	5	6	8	8	8	9	11	3	2	73
Cases died	2	1	1	1	3	1	------	5	3	6	------	3	26
Cases escaped	1	------	------	4	4	------	2	1	2	2	------	------	16
Cases discharged to provinces or China	1	1	------	1	------	------	1	2	1	------	------	1	8
Cases remaining	202	204	208	207	206	213	218	218	221	224	227	225	------

WOMEN'S DEPARTMENT.

Status.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	Total.
Cases on hand	74	75	75	84	39	79	101	72	136	95	75	85	------
Cases received	71	105	81	57	93	92	67	139	93	84	87	72	1,041
Cases transferred	2	1	------	1	------	1	1	3	1	1	5	------	16
Cases discharged	68	104	72	101	53	69	95	72	133	103	72	51	993
Cases remaining	75	75	84	39	79	101	72	136	95	75	85	106	------

CHOLERA DEPARTMENT.

Status.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	Total.
Cases on hand	2	2	1	------	1	------	------	------	------	------	------	------	------
Cases received	71	28	9	4	1	------	------	------	------	------	------	------	114
Cases died	56	23	6	3	1	------	------	------	------	------	------	------	89
Cases transferred	1	2	------	------	------	------	------	------	------	------	------	------	3
Cases discharged	15	4	4	------	1	------	------	------	------	------	------	------	24
Cases remaining	2	1	------	1	------	------	------	------	------	------	------	------	------

Consolidated report of San Lazaro Hospital, etc.—**Continued.**

PLAGUE DEPARTMENT.

Status.	1903.				1904.								
	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	Total.
Cases on hand	1	------	------	------	------	1	2	------	1	------	------	------	------
Cases received	1	------	1	------	4	4	2	4	1	------	------	------	17
Cases died	1	------	------	------	2	1	2	3	1	------	------	------	10
Cases transferred	------	------	------	------	1	2	------	------	------	------	------	------	8
Cases discharged	1	------	1	------	------	------	2	------	1	------	------	------	5
Cases remaining	------	------	------	------	1	2	------	1	------	------	------	------	------

SMALLPOX DEPARTMENT.

Status.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	Total.
Cases on hand	2	1	1	1	1	2	------	4	5	7	1	1	------
Cases received	1	2	3	2	1	------	10	10	17	5	8	4	58
Cases died	1	------	2	2	------	------	------	3	4	1	------	8	16
Cases transferred	------	1	------	------	------	------	1	1	1	2	------	------	6
Cases discharged	1	1	1	------	------	2	5	5	10	8	8	------	86
Cases remaining	1	1	1	1	2	------	4	5	7	1	1	------	------

MORGUE.

Status.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	Total.
Bodies on hand	9	9	1	------	------	1	1	1	------	------	8	------	------
Bodies received	214	102	38	86	29	21	88	82	41	25	38	24	628
Bodies cremated	106	72	15	8	1	1	1	1	1	2	1	------	204
Bodies buried	105	38	24	33	27	20	82	82	40	20	35	24	480
Post-mortems	34	14	12	19	20	18	20	18	17	18	12	8	195

CREMATORY.

Status.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	Total.
Bodies cremated	106	72	15	3	1	1	1	1	1	2	1	------	204

STEAM DISINFECTING PLANT.

Status.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	July.	August.	Total.
Articles of clothing disinfected	21	22	12	11	2	8	89	48	70	36	16	15	800
Bedding disinfected	9	9	12	9	4	6	30	42	66	32	12	18	249
Miscellaneous	6	4	9	3	2	2	80	96	70	42	8	10	832

CORRAL.

The ambulance corral formerly under the control of the Board of Health direct was transferred to the Insular Purchasing Agent on November 1, 1903. Since that date its maintenance has been entirely in the hands of the Insular Purchasing Agent, the Board of Health using the transportation in the same manner as formerly.

The reduction in the demand for ambulances, dead wagons, and disinfecting carts has, of course, correspondingly reduced the service rendered.

Report of service rendered by corral during the year.

Number of plague cases transferred	21
Number of cholera cases transferred	145
Number of smallpox cases transferred	71
Number of leper cases transferred	73
Total	310
Disinfecting service:	
Number of houses disinfected	1,420
Number of corrals disinfected—	
Insanitary condition	69
Glanders	60
Surra	34
Lymphangitis	18
Cattle stables, to prevent rinderpest	34
Dead-wagon service: Number of bodies transferred to morgue	628
Pail-system service. (Now under Municipal Board.)	

DELIVERY-WAGON SERVICE.

A light delivery wagon is used in connection with the storehouse and in delivering supplies to stations, hospitals, and wharves for shipment by vessels.

STOREHOUSE.

The removal of the storehouse from San Lazaro Hospital to quarters in the Potenciana Building has greatly improved the facilities for properly carrying on this important division of the Bureau. All light and frequently called-for supplies are kept in this storehouse to facilitate delivery; however, heavy supplies and those not frequently in demand are still kept in the old quarters at San Lazaro.

MEDICAL INSPECTORS AND INSPECTIONS.

The number of medical inspectors now allowed the Board of Health is 18. During the year nearly all provinces have been inspected with reference to organization and work accomplished by provincial and municipal boards of health, prevailing diseases and customs and habits of the people with regard to health and sanitation.

In order to systematize provincial inspection the Islands were divided into provincial health districts, and these districts have been taken up as medical inspectors have been available and much reliable information has been secured for the use of this Board.

During the year several changes have occurred in the personnel of medical inspectors by reason of resignations and death and the appointment of new men.

Professional work accomplished in Manila by district medical inspectors during the year.

Location.	Number of sick visited.	Number of diagnoses made of quarantinable diseases.	Number of criminal cases investigated.	Number of accident cases attended.
Station A	240	136	10	14
Station C	362	169	14	22
Station F	92	44	3	10
Station G	210	145	4	18
Station I	192	42	2	9
Station J	322	59	6	16
Station L	214	68	8	11
Total	1,632	762	47	100

SANITARY INSPECTORS.

The sanitary inspectors allowed the Board of Health have also undergone several changes during the year through resignation. The present personnel composed of 12 Americans and 10 Filipinos have, in addition to their regular work in Manila, been given special duties during the year, and without exception the service rendered by them has been intelligent and conscientious. During the year the sanitary work maintained by the Board of Health in the Mariquina Valley has been under the personal direction of a sanitary inspector. It was found necessary during the early part of the year to send sanitary inspectors to the provinces to conduct health measures for the suppression of Asiatic cholera. In each instance the work was conducted intelligently and terminated successfully.

For months a sanitary inspector has been detailed in Cebu, Province of Cebu, in connection with the operations of the Insular Board of Health in suppressing plague and placing the city in a sanitary condition. The reports received from the medical officer in charge indicate that excellent service has been rendered by this inspector.

The sanitary inspector detailed as morgue keeper at the Board of Health morgue, San Lazaro, continues to perform his duties in a creditable manner.

The sanitary inspector detailed in the division of sanitary engineering continues to render a high class of service and to perform his duties in an intelligent manner.

At present a sanitary inspector is on special duty at Culion leper colony.

The Board has recently lost by resignation two excellent sanitary inspectors who have had two or more years' experience in health work in Manila and the provinces. These men resigned to enter private business pursuits, claiming that as there was no opportunity for promotion in their grade they could better their salaries elsewhere. As per my former recommendation to the Board, it would be well to make it to the interest of the best of these men to remain in the service, giving them a salary at least equal to a lieutenant or sergeant of police, with an increase of 10 per cent after two years' faithful and satisfactory service.

ASSISTANT SANITARY INSPECTORS.

The force of assistant sanitary inspectors was composed formerly of 48 Filipinos, but on January 30, 1904, was reduced to 10. These men are all on duty at stations with the exception of one who is on duty in Cebu, and render service as station record clerks in charge of rat catchers and subdistrict inspection.

SANITARY POLICE.

In March, 1904, 25 native police were requested for assignment to the Board of Health as sanitary inspectors. On April 22, 1904, 14 only were thus assigned, the police department being short of men. Three additional policemen were subsequently assigned, making a total of 17 men. Two of these men were placed at each of the seven stations and one additional at Station A and two additional at Station C. The men assigned were intelligent, and from the day of their detail they have worked well and learned rapidly. Not a single instance has arisen where it has been necessary to report other than excellent conduct, and no conflict of authority has arisen. An arrangement was made with the Municipal Board that, for the purpose of discipline only, these men were to remain under the police department, but for all other purposes they are under the Board of Health. By making no changes in this detail a very efficient corps of sanitary police will soon be evolved, and when a sufficient number are detailed to properly inspect the city within a period sufficiently brief to maintain the cleanliness of the city this method will be an improvement over the former.

SANITARY CONDITIONS OF HOSPITALS AND ASYLUMS IN MANILA.

San Lazaro Hospital.—Considering the character of the building and with the sanitary arrangements recently instituted, it may be said that the old building is now in probably as good sanitary condition as it could reasonably be. The new building is in excellent condition.

Civil Hospital.—This building is not well adapted for the purpose of a hospital. Since an overflow has been laid to the Calle Alix estero the chief complaint in connection with the cesspool and sewerage of the building has been remedied.

San Juan de Dios Hospital.—This institution continues to be maintained in a creditable manner. The greatest difficulty has been its sewerage arrangements. Within the last three months this has been entirely remodeled under orders from the Board of Health, and the difficulty frequently experienced has been remedied.

Hospicio de San José.—The sanitary condition of this institution is very good, considering the system in vogue, and the building is maintained in a cleanly manner. The quarters for the insane are not well adapted for the purpose. However, they are kept scrupulously clean, and the treatment accorded the inmates as good as circumstances will permit.

SANITARY SCHOOL OF INSTRUCTION IN MANILA FOR PRESIDENTS OF PROVINCIAL BOARDS OF HEALTH.

The recommendations made May 8, 1903, as to the necessity for bringing the Filipino presidents of provincial boards of health to Manila for instruction materialized December 1, 1903. A system of instruction was devised covering a period of one month and devoting to each department of health work in Manila sufficient time to give an insight into the method of procedure.

Five classes were ordered to Manila, each of which was composed of from five to eight provincial health officers, depending upon the convenience of the official and facility with which he could reach Manila. The entire course was completed in less than six months.

Upon returning to their homes each official was requested to write a thesis upon his observations, and judging from these reports, taken as a whole, the Filipino provincial health officers have now better ideas of health matters than ever before, and it would appear that both time and funds expended for this purpose should make ample return.

The course given each class while in Manila was as follows: Two days, office of veterinary surgeon, Potenciana Building; hours, 8 to 12 and 2 to 5.30, except Sundays. Nights at abattoir. Instruction in clinical and post-mortem diagnosis of epidemic diseases of domestic live stock; examination of live stock and meat at abattoir.

Two days, office sanitary engineer, city of Manila, Potenciana Building. Hours, 8 to 12 and 2 to 5.30, except Sundays. Instructions: Inspection of plumbing and method of operating the pail-conservancy system.

One day, office chief vaccinator. Hours 8 to 12 and 2 to 5.30, except Sundays. Instructions: Method of vaccinating and recording vaccinations.

Six days, Station A, Board of Health (San Nicolas), Health District No. 1, also river and water-front service. Hours 8 to 12 and 2 to 5.30, except Sundays. Instructions: (*a*) Observing the general workings of a sanitary station; (*b*) the methods of sanitary, house, and food inspection; (*c*) disinfection; (*d*) plague inoculations; (*e*) treatment of plague and cholera houses; (*f*) services of sanitary orders; (*g*) diagnosis and removal of infectious cases; (*h*) rat destruction in prevention of plague.

Three days, office chief quarantine officer for the Philippine Islands. Instruction in ship inspection, quarantine, and ship disinfection.

Six days, San Lazaro hospitals. Departments: Cholera, plague, smallpox, leprosy, women's, morgue, crematory, and steam disinfecting plant. Instructions: Management and equipment of the sick, methods of making post-mortem examinations, disposal of the dead.

Two days, Serum Laboratory (San Lazaro). Hours 8 to 12 and 2 to 5.30, except Sundays. Instruction: Method of preparing serums. and vaccine virus; also inoculating against rinderpest, and the use of fungus against locusts.

Two days, office of the Secretary, Board of Health for the Philippine Islands, Potenciana Building. Hours 8 to 12 and 2 to 5.30, except Sundays. Instructions: Keeping of records, calculation of vital statistics, preparation and use of reports.

HEALTH PUBLICATIONS.

During the year two health bulletins have been issued from this Bureau and the third is now ready for press. Health Bulletin No. 2, on Asiatic cholera, prepared by the chief health inspector and published August 1, 1903, in English, Spanish, and Pampangan, was distributed throughout the Islands. Its reception was most gratifying, and the good accomplished by it has been repeatedly demonstrated.

Health Bulletin No. 3, on the "Care of Infants," by Drs. Juan Miciano, Ariston Bautista, Mariano Martin, and Manuel Gomez, has already undergone translation and publication in English, Spanish, Tagalog, Pampangan, Ilocano, and Visayan, and in distribution has exceeded 60,000 copies. This bulletin concerns a matter of vital importance to the people of these Islands, viz, infant mortality. It was written, therefore, to reach the people rather than the medical practitioner, and its reception has been exceedingly gratifying to the Board. It is confidently believed that much good will ultimately result from the information thus conveyed to a people who, upon matters of maternity and infancy, are ignorant almost beyond belief.

As has been frequently published by this Board, the infant mortality under 1 year alone in Manila and throughout the Islands is responsible for practically 50 per cent of the total mortality, and is due principally to ignorance which permits the brutal treatment received by the parturant woman and the subsequent inattention or improper attenion received by both the mother and the child.

PROVINCIAL HEALTH FORMS.

The printing and distribution to the presidents of provincial boards of health and presidents of municipal boards of health of board of health blank forms, setting forth the necessary information required by this Bureau, has already proven advantageous. However, it is frequently difficult to secure the information desired, by reason of the fact that many presidents of municipal boards of health are not qualified physicians and it seems difficult for them to understand the character of information desired and how it should be furnished.

DEATH OF MEDICAL INSPECTOR JAMES H. WILLIAMS.

The death of Dr. James H. Williams, medical inspector of this Board, by drowning in Lamon Bay on February 10, 1904, cast a gloom over this Bureau. Dr. Williams was sent to the Province of Tayabas to suppress smallpox, which was assuming an epidemic form, with instructions to canvass the province and perform such vaccinations as appeared to be necessary. While returning from the Island of Alabat, where he had been to investigate the smallpox situation, he was caught in a sudden gale and the vessel was capsized and all on board lost with the exception of several of the native boatmen.

DEATH OF CHIEF SANITARY INSPECTOR CIRILO CAÑIZARES.

Chief Sanitary Inspector Cirilo Cañizares, one of the only two Filipino chief sanitary inspectors this Board has ever had, died August 21, 1904, after a brief illness. The faithful and conscientious service rendered by this inspector, particularly during the cholera epidemic, won for him the confidence and respect of all who knew him.

Respectfully submitted.

THOS. R. MARSHALL,
Chief Health Inspector for the Philippine Islands.

The COMMISSIONER OF PUBLIC HEALTH, *Manila, P. I.*

REPORT OF THE PHYSICIAN IN CHARGE OF SAN LAZARO HOSPITALS, SEPTEMBER 1, 1903, TO AUGUST 31, 1904

Dr. H. B. Wilkinson, physician in charge of the San Lazaro hospitals, under date of the 1st of September, 1904, makes the following report of the work performed by the several departments of this hospital during the year ended August 31, 1904:

In this report is given a very concise history of the origin, development, and present organization of the hospital, concluding with a more detailed account of the improvements made and the work accomplished during the past twelve months.

The first special leper institution established in Manila was established by the Franciscans as a department of their general hospital, and was located in the district of Concepcion, just across the street from the present First Reserve Hospital. This general hospital was constructed by the Franciscan Order in 1603 and used in general for all classes of disease until the arrival of about 150 Japanese lepers in 1632, when a separate department was created to care exclusively for leprosy. This conjoined arrangement continued with the exception of a few years between 1662 and 1681, when, for safety during a threatened invasion by Chinese pirates, the hospital was removed to Quiapo and placed under the management of the local curé. In 1784, on account of the military necessities brought forcibly to the notice of the Spanish authorities during the English invasion in 1762, it was deemed advisable to remove the hospital permanently from Concepcion to a point more distant from the coast defenses. Just two years previously (in 1782), on the expulsion of the Jesuits from the Islands by Carlos III, the Spanish Government took possession of the present San Lazaro estate, which at this time (1784) was turned over to the Franciscans for a leper institution, with the understanding that a portion thereof was to be used as a site for a hospital, while the bulk of the estate was to be rented. The revenues thus received were to be devoted to the support of the lepers.

Accordingly in 1784 the first regular leper hospital was built of stone at a cost of "27,540 pesos 2 reales and 2 granos" on the present site of San Lazaro Hospital and called by its present name. From time to time minor additions and repairs were made, especially after damages from earthquakes and storms, until 1859, when Father Felix Huerta assumed charge of the institution and is said to have made great improvements. At this time the buildings were enlarged, the extensive stone walls were constructed at a cost of 30,000 pesos, and a stone building erected for the Civil Guard (probably the present serum laboratory). Father Felix Huerta seems to have been a man of unusual administrative capacity, especially noted for his ability to collect money. It is said that he collected and expended on the institution during twenty-one years of his administration, between 1859 and 1880, about 330,000 pesos. From 1632 until the transfer of San Lazaro Hospital to the United States military authorities, about September 4, 1898, this institution was constantly under the management of the Franciscans, with the exception of the few years between 1862 and 1861, when it was administered by the curé of Quiapo.

On the arrival of the American Army in Manila the members of the Franciscan Order were living in the front of the two present stone buildings, while the rear one was used for the lepers. On August 12, 1898, the disturbed condition of the country reached such a stage that it was unsafe for these Spaniards to live so far out of town, so on this date they left the hospital and moved into the Walled City, notifying the American authorities of the fact on the following day, but continuing to administer the affairs of the institution until about September 4, when they were formally relieved by the United States military authorities.

During the military administration, for the purpose of preventing disease among the soldiers, the women's department of this hospital was opened in the front building formerly occupied by the Spanish friars, where it has remained until the present time. On the transfer from military to civil government in these Islands this institution continued unchanged, consisting of only two departments (women's and leper) until March 4, 1903, when the bubonic-plague and smallpox hospitals and also the morgue and crematory were united with it under one management. Later, on March 18, the cholera department was added and we reached our present stage of organization, which is a consolidated hospital consisting of the women's, leper, bubonic-plague, smallpox, and cholera departments, to which are united for purposes of administration a morgue, crematory, and disinfecting plant.

This institution is controlled by the Board of Health for the Philippine Islands and is directly under the supervision of a "physician in charge," who is assisted by 1 American and 2 native doctors, 5 American employees, 6 American trained nurses, and 76 native employees, consisting of nurses, laundresses, cooks, servants, etc.

Foods, medicines, and general supplies are purchased conjointly for the several departments or hospitals and are distributed as conditions require. The employees are all carried on one pay roll and can be assigned to any department or transferred from one to another as circumstances demand. Should the number of patients suddenly increase in one of the hospitals we can draw on the employees of the others to meet the emergency and then readjust as soon as conditions return to their normal state. We also attempt to promote the older employees to the higher-grade positions and never replace our employees without definite cause.

The general repairs to this institution had been greatly neglected for a number of years past, but I am glad to be able to report that during the past twelve months a great many necessary repairs, improvements, and additions have been made to the grounds, buildings, and general equipment. So that while two years ago even casual visitors on leaving the institution went away having an unpleasant feeling toward a Government which would force unfortunates afflicted with contagious diseases to enter such a place, to-day they show great surprise that such an institution should exist in the East and not infrequently express their willingness or even desire to be brought here at once should they contract any of the contagious diseases. The service in the wards (and also the food) has been much improved since we have had trained nurses to assist. There have been also some advances made in an effort to grade the grounds, plant trees and grass, and in general to beautify the surroundings.

The important improvements and additions made during the past twelve months are as follows:

(1) Construction of the new hospital for contagious diseases, including an administration building connected by means of a covered corridor with three

other isolated buildings, one for plague, one for cholera, and one for smallpox. The buildings can accommodate about 100 patients and were opened for occupation on February 11, 1904.

(2) The addition of six trained nurses.

(3) The removal of three of the old masonry arches at the side of the main avenue and the construction of a good macadamized road to the new contagious hospital.

(4) The filling in and grading of some of the low ground around the buildings.

(5) The installing of the main part of a new surface-water drainage system in place of the old estero system.

(6) The construction of three new septic tanks to contain the sewage from the several departments.

(7) The replacement of all of the old bamboo beds of all the hospitals by newly enameled iron beds which were bought at a bargain at an Army sale.

(8) The installation of electric lights throughout the hospitals.

(9) The installation of a telephone system connecting the different departments, thereby lessening work, facilitating isolation, and at the same time reducing expense because it enables us to dispense with two city phones.

With very few exceptions, as may be seen from the above, we have had no trouble in obtaining repairs and improvements to the grounds and buildings and equipment for the wards, but I again call attention to one exception of long standing to this general rule, namely: It has been frequently recommended that more definite separation should be made between sick cattle and human beings with contagious diseases, as the cattle largely increase the flies which tend to spread the diseases, but as yet no results have come from these recommendations.

The work done in the consolidated hospitals during the past twelve months has been as follows:

Remaining in hospital September 1, 1903		281
Admitted September 1, 1903, to August 31, 1904		1,302
Total		1,583
Discharged during year	1,080	
Died during year	139	
Transferred	17	
Escaped (lepers)	16	
		1,252
Remaining in hospital August 31, 1904		331

The average number treated per day during the year was 297, being, for September, 282; October, 272; November, 288; December, 273; January, 238; February, 293; March, 301; April, 336; May, 335; June, 331; July, 308; and August, 313.

The average cost of subsistence per patient per day, in United States currency, was, for September, 19 cents; October, 20 cents; November, 22 cents; December, 21 cents; January, 19 cents; February, 19 cents; March, 20 cents; April, 19 cents; May, 18 cents; June, 17 cents; July, 18 cents, and August, about 20 cents.

Following will be found a summary of the work done in each of the several departments during the year:

WOMEN'S DEPARTMENT.

An account of the general management and methods of this department can be found in my last report of September 1, 1903. During the year this work has gone on quietly and with few, if any, changes, so that there is but little to call for special remark. There have been no deaths and very few acute general diseases. One native, register No. 3060, admitted January 30, 1904, was found on admission to have fever, which soon developed into bubonic plague. She was transferred to the plague department and died February 7.

This department was from July 1, 1903, to April 2, 1904, under the medical supervision of Dr. George D. Fairbanks, and since that date under the supervision of Dr. E. C. Shattuck, with Dr. Ampil as assistant.

There were 74 cases of venereal diseases brought forward from last year, and 1,041 cases admitted during the year, making a total of 1,115 cases treated. Of these 988 cases have been discharged cured, 5 discharged uncured to leave the Islands within twenty-four hours, 9 transferred to other hospitals, 7 turned over to the police, and 106 remain in the wards.

Admissions, discharges, etc., women's department.

Nationality.	1903.													
	September.							October.						
	Remaining last report.	Admitted.	Total.	Discharged cured.	Transferred.	Total.	Remaining Sept. 30, 1903.	Remaining last report.	Admitted.	Total.	Discharged cured.	Transferred.	Total.	Remaining Oct. 31, 1903.
Filipinas	48	38	81	30	1	31	50	50	46	96	52	-----	52	44
Japanese	29	30	59	33	1	34	25	25	51	76	47	1	48	28
Others	2	3	5	5	-----	5	-----	-----	8	8	5	-----	5	3
Total	74	71	145	68	2	70	75	75	105	180	104	1	105	75

Nationality.	1903.											
	November.					December.						
	Remaining last report.	Admitted.	Total.	Discharged cured.	Remaining Nov. 30, 1903.	Remaining last report.	Admitted.	Total.	Discharged cured.	Transferred.	Total.	Remaining Dec. 31, 1903.
Filipinas	44	45	89	37	52	52	33	85	54	1	55	30
Japanese	28	27	55	32	23	23	24	47	38	-----	38	9
Others	3	9	12	3	9	9	-----	9	9	-----	9	-----
Total	75	81	156	72	84	84	57	141	101	1	102	39

Nationality.	1904.												
	January.					February.							
	Remaining last report.	Admitted.	Total.	Discharged cured.	Remaining Jan. 31, 1904.	Remaining last report.	Admitted.	Total.	Discharged cured.	Discharged to leave Islands.	Transferred.	Total.	Remaining Feb. 29, 1904.
Filipinas	30	48	78	32	46	46	40	86	32	-----	1	33	53
Japanese	9	41	50	21	29	29	51	80	34	-----	-----	34	46
Others	-----	4	4	-----	4	4	1	5	1	2	-----	3	2
Total	39	93	132	53	79	79	92	171	67	2	1	70	101

Admissions, discharges, etc., women's department—Continued.

Nationality.	1904. March. Remaining last report.	Admitted.	Total.	Discharged cured.	Transferred.	Total.	Remaining Mar. 31, 1904.	April. Remaining last report.	Admitted.	Total.	Discharged cured.	Transferred.	Total.	Remaining Apr. 30, 1904.
Filipinas	53	30	83	42	1	43	40	40	71	111	27	3	30	81
Japanese	46	35	81	51	-----	51	30	30	62	92	40	-----	40	52
Others	2	2	4	2	-----	2	2	2	6	8	5	-----	5	3
Total	101	67	168	95	1	96	72	72	139	211	72	3	75	136

Nationality.	1904. May. Remaining last report.	Admitted.	Total.	Discharged cured.	Discharged to leave Islands.	Transferred.	Total.	Remaining May 31, 1904.	June. Remaining last report.	Admitted.	Total.	Discharged cured.	Discharged to leave Islands.	Transferred.	Total.	Remaining June 30, 1904.
Filipinas	81	45	126	69	-----	-----	69	57	57	35	92	43	-----	1	44	48
Japanese	52	45	97	59	1	-----	60	37	37	46	83	57	1	-----	58	25
Others	3	3	6	4	-----	1	5	1	1	3	4	2	-----	-----	2	2
Total	136	93	229	132	1	1	134	95	95	84	179	102	1	1	104	75

Nationality.	1904. July. Remaining last report.	Admitted.	Total.	Discharged cured.	Transferred.	Total.	Remaining July 31, 1904.	August. Remaining last report.	Admitted.	Total.	Discharged cured.	Discharged to leave Islands.	Total.	Remaining Aug. 31, 1904.
Filipinas	48	52	100	37	5	42	58	58	36	94	31	-----	31	63
Japanese	25	33	58	33	-----	33	25	25	32	57	19	1	20	37
Others	2	2	4	2	-----	2	2	2	4	6	-----	-----	-----	6
Total	75	87	162	72	5	77	85	85	72	157	50	1	51	106

Diagnoses of completed cases.

Month.	Gonorrhea.	Syphilis.	Chancroid.	Gonorrhea and chancroid.	Found not diseased.	Total.
1903.						
September	63	1	1	5	----------	70
October	95	1	4	4	1	105
November	61	1	7	1	2	72
December	88	3	4	6	1	102
1904.						
January	41	1	8	3	----------	53
February	54	1	3	12	----------	70
March	67	4	12	13	----------	96
April	46	1	19	9	----------	75
May	68	6	28	32	----------	134
June	61	5	28	10	----------	104
July	45	1	21	10	----------	77
August	35	1	6	9	----------	51
Total	724	26	141	114	4	1,009

Average number of days cases remained in hospital.

Month.	Patients discharged.	Average days in hospital.
1903.		
September	70	37
October	105	26
November	72	22
December	102	26
1904.		
January	53	32
February	70	32
March	96	28
April	75	18
May	134	31
June	104	31
July	77	34
August	51	33
Total and average	1,009	28

On comparison of the tables of this report with similar tables of the year previous the following points are observed: The total number of completed cases decreased from 1,098 to 1,009; the number of admissions and discharges during the different months is more regular; the number of women leaving the hospital and Islands at their own request and presumably because of dissatisfaction with sanitary restrictions is reduced from 16 to 5; the number transferred to other hospitals or the police department on account of intercurrent diseases or misconduct falls from 28 to 16. The average number of days spent in the hospital by each case is reduced from 37 last year to 28 this year. It will be noted that all of these changes, as may be seen from a casual inspection of the tables, indicates a tendency toward efficiency of work as well as stability of results.

LEPER DEPARTMENT.

Dr. Mercado continues to do the medical work in this department, and the patients have as usual been quiet, cheerful, and contented. The only thing that seems to disturb them is an occasional rumor that they are soon to be transferred to a leper colony on some distant island, for they strenuously object to being removed from the immediate neighborhood of their friends and relatives. During the year a well-equipped X-ray apparatus has been placed in the leper wards, and its efficacy to some extent tried with both lupus and leprosy. In the former disease good results are being obtained, but in the latter the results have scarcely been discernible.

We have also replaced all of the old bamboo beds by neat, newly enameled iron beds and substituted electric lights in place of the oil lamps formerly used, both of which changes have greatly improved the appearance as well as increased the comforts of the department. During the past year, while the number of patients has considerably increased, the number of escapes has decreased from 46 reported last year to 16 as per this report. This marked decrease in the number of escapes, while no additional preventive measures have been adopted, would indicate a greater degree of contentment among the patients. Five of the 16 who escaped have returned and have been readmitted. As will be seen, the number of deaths during the year has increased to 26 as compared with 14 reported last year.

Lepers.

Remaining in hospital September 1, 1903		202
Admitted during the year		73
Total		275
Discharged, diagnosis "not leprosy"	5	
Discharged to go to China (Chinese)	2	
Discharged to go to Mindanao	1	
Died during the year	26	
Escaped during the year	16	
		50
Remaining in hospital August 31, 1904		225

Of the 225 patients remaining there are 132 male Filipinos, 91 female Filipinos, 1 male Chinese, and 1 female Spaniard.

THE CONTAGIOUS-DISEASE SECTION.

This section is composed of the bubonic-plague, smallpox, and cholera departments, and occupies the newly constructed buildings for highly contagious diseases located on the site of the old detention camp. These buildings were completed early in the year at a cost of about $25,000, United States currency, and were occupied February 11, 1904. The buildings are arranged on the pavilion plan and are substantially constructed of hard material covered with rubberoid. These departments each occupy a separate building, connected with the general administration building by a covered passageway. The administration building accommodates the trained nurses at one end, while in the other end are located the office, store rooms, and kitchen. Patients admitted with contagious diseases who have been attended by outside physicians are allowed to retain their private physician when they so desire. The physician in charge personally does the medical work in these departments.

Bubonic-plague department.

Status.	Number.
September, 1903:	
Remaining Sept. 1, 1903	1
Admitted	1
Total	2
Died	1
Discharged cured	1
Total	2
November, 1903:	
Admitted	1
Discharged	1
January, 1904:	
Admitted	4
Died	2
Transferred to Chinese hospital	1
Total	3
Remaining Jan. 31, 1904	1
February, 1904:	
Remaining Feb. 1, 1904	1
Admitted	4
Total	5
Died	1
Discharged, diagnosis "not plague"	2
Total	3
February, 1904—Continued.	
Remaining Feb. 29, 1904	2
March, 1904:	
Remaining Mar. 1, 1904	2
Admitted	2
Total	4
Died	2
Discharged cured	2
Total	4
April, 1904:	
Admitted	4
Died	3
Remaining Apr. 30, 1904	1
May, 1904:	
Remaining May 1, 1904	1
Admitted	1
Total	2
Died	1
Discharged cured	1
Total	2

As will be seen from the foregoing table, 1 case was brought forward from last year and 17 were admitted during the year, making a total of 18. Of these 3 cases proved not to be plague, while 1 case was transferred to the Chinese hospital, leaving a total of 14 cases of plague actually treated, of which 10 died and 4 recovered, giving a mortality of 71 per cent as compared with 71 per cent of last year. It is only fair to state that practically all of these cases were admitted in a late stage of the disease (after two to five days), there being only two exceptions, and many of them were scarcely in bed before death ensued. One of the cases lived fifteen minutes, one three hours, and one four hours after reaching the hospital, and several only a little longer. All of those who lived long enough were treated with serum, and I feel sure that it was the means of saving at least one of the four that recovered and probably benefited others. Serum was usually given subcutaneously, but occasionally intravenously, in 30-cubic centimeter doses. Of the 14 completed cases spoken of above 13 were natives and 1 a Spaniard. The Spaniard recovered.

Smallpox department.

Status.	Number.
September, 1903:	
Remaining Sept. 1, 1903	2
Admitted	1
Total	3
Died	1
Discharged cured	1
Total	2
Remaining Sept. 30, 1903	1
October, 1903:	
Remaining Oct. 1, 1903	1
Admitted	2
Total	3
Diagnosis "not smallpox"	1
Discharged cured	1
Total	2
Remaining Oct. 31, 1904	1
November, 1903:	
Remaining Nov. 1, 1903	1
Admitted	3
Total	4
Died	2
Discharged cured	1
Total	3
Remaining Nov. 30, 1903	1
December, 1903:	
Remaining Dec. 1, 1903	1
Admitted	2
Total	3
Died	2
Remaining Dec. 31, 1903	1
January, 1904:	
Remaining Jan. 1, 1904	1
Admitted	1
Total	2
Remaining Jan. 31, 1904	2
February, 1904:	
Remaining Feb. 1, 1904	2
Discharged cured	2
Total	4
March, 1904:	
Admitted	10
Diagnosis "not smallpox"	1
Discharged cured	5
Total	6
Remaining Mar. 31, 1904	4
April, 1904:	
Remaining Apr. 1, 1904	4
Admitted	10
Total	14
Diagnosis "not smallpox"	1
Died	3
Discharged cured	5
Total	9
Remaining Apr. 30, 1904	5
May, 1904:	
Remaining May 1, 1904	5
Admitted	17
Total	22
Died	4
Discharged cured	11
Total	15
Remaining May 31, 1904	7
June, 1904:	
Remaining June 1, 1904	7
Admitted	5
Total	12
Diagnosis "not smallpox"	2
Died	1
Discharged cured	8
Total	11
Remaining June 30, 1904	1

Smallpox department—Continued.

Status.	Number.	Status.	Number.
July, 1904:		August, 1904:	
Remaining July 1, 1904	1	Remaining Aug. 1, 1904	1
Admitted	3	Admitted	4
Total	4	Total	5
Discharged cured	3	Diagnosis "not smallpox"	2
Remaining July 31, 1904	1	Died	3
		Total	5

On examination of the preceding table we find 2 cases brought forward from last year and 58 cases admitted. From this total of 60 cases deduct 7 cases found to be "not smallpox" and there remain 53 completed cases, of which 37 recovered and 16 died, giving a mortality of 30 per cent. With respect to nationality we find the following mortality rate:

Nationality.	Recovered.	Died.	Total.	Mortality.
				Per cent.
Natives	24	8	32	25
Americans	9	5	14	35
English	2	1	3	33
Japanese	1	1	2	50
Spaniard	1		1	
Syrian		1	1	100

As compared with last year, this general mortality does not show up well, but a comparison between the two years is valueless, as the proportion of native cases, with its small mortality, is very much less. It will be seen also that even the native death rate is much higher this year, which is accounted for by the fact that we admitted several natives who had remained outside and uncared for until practically moribund. With a reasonably large number of cases the mortality rate among natives would be very low, not reaching one-half of that which this table shows. Smallpox among Europeans is very serious in this country.

Cholera department.

Status.	Number.	Status.	Number.
September, 1903:		November, 1903:	
Remaining Sept. 1, 1903	2	Remaining Nov. 1, 1903	1
Admitted	69	Admitted	9
Total	71	Total	10
Diagnosis "not cholera"	1	Died	6
Died	54	Discharged cured	4
Discharged cured	14	Total	10
Total	69	December, 1903:	
Remaining Sept. 30, 1903	2	Admitted	4
October, 1903:		Died	3
Remaining Oct. 1, 1903	2	Remaining Dec. 31, 1903	1
Admitted	28	January, 1904:	
Total	30	Remaining Jan. 1, 1904	1
Diagnosis "not cholera"	3	Admitted	1
Died	23	Total	2
Discharged cured	3	Diagnosis "not cholera"	1
Total	29	Died	1
Remaining Oct. 31, 1903	1	Total	2

Cholera department—Continued.

Status.	Number.	Status.	Number.
June, 1904:		July, 1904—Continued.	
Admitted	1	Discharged "not cholera"	1
Died	1		
		August, 1904:	
July, 1904:		Admitted	1
Admitted	1	Diagnosis "not cholera"	1

As will be seen, two cases were brought forward from last year and 113 admitted. Of this total 7 cases were found to be "not cholera," leaving 108, 87 of which died and 21 recovered, giving a mortality of 80 per cent. This is a much higher death rate than we reported last year when we treated 385 cases with a mortality of 68 per cent. It is found with all of these epidemic diseases that as the epidemic goes down and the cases become scattered they necessarily arrive at the hospital much further advanced in the attack and the disease is more fatal. This applies to plague, cholera, and smallpox and seems to be due partly to the fact that when the number of cases becomes very low the systematic inspection for them becomes less active, consequently they remain longer in their homes without treatment or attention. A peculiar tendency existing with the cholera cases last fall, when, for several weeks, practically all patients reaching the convalescent stage were taken with acute lobar pneumonia, from which they invariably died. Several weeks later pneumonia disappeared and the convalescents all succumbed to nephritis, which followed the acute attack of cholera.

MORGUE AND CREMATORY.

Here we receive the bodies of all persons dying in Manila whose deaths are supposed to have resulted from one of the contagious diseases, from violence, or from any cause necessitating an autopsy or requiring legal investigation; also we receive the bodies of paupers to be buried at city expense. The Bureau of Government Laboratories performs all official autopsies, upon the request of the physician in charge when a medical question is involved or upon the request of the prosecuting attorney when a legal question is at issue. The morgue keeper, who is detailed from the office of the chief health inspector of the Board of Health, is personally in charge of the details of the morgue and crematory and sees that none of the sanitary laws are violated. During the past year 635 bodies were received in the morgue. Of this number 512 were natives, 67 Chinese, 27 Americans, 4 Spaniards, and 26 others.

Number of bodies received at the morgue and causes of death.

Month.	Cholera.	Bubonic plague.	Small-pox.	Leprosy.	Violence.	Other causes.	Total.
1903.							
September	187	5	2	2	3	20	219
October	88	2	----------	1	2	9	102
November	21	2	2	1	4	8	38
December	11	2	3	1	3	15	35
1904.							
January	5	6	----------	3	1	13	28
February	3	4	----------	1	3	.9	20
March	1	13	1	----------	1	17	33
April	----------	15	5	5	----------	7	32
May	1	16	5	3	3	12	40
June	----------	6	3	6	----------	18	33
July	----------	10	1	----------	6	15	32
August	----------	7	4	3	----------	----------	23
Total	317	88	26	26	26	152	635

Number of autopsies held during the year	197
Number of bodies cremated	211
Number buried by family	166
Number buried as paupers by city	258

REPORT OF THE SANITARY ENGINEER, SEPTEMBER 1, 1903, TO AUGUST 31, 1904.

SANITARY ENGINEERING DIVISION,
Manila, September 6, 1904.

SIR: I have the honor to submit the following report of the sanitary engineering division for the period from September 1, 1903, to August 31, 1904:

As this will be my last annual report as chief of the division, I desire to give a brief history of the division from its beginning.

The sanitary engineer for the Philippine Islands was by law city engineer for Manila. The duties of the latter position required so much of his time that he was unable to give any attention whatever to his sanitary duties.

In November, 1901, I applied to the Commissioner of Public Health for work with the Board of Health, pointing out at the same time the necessity of having some of the houses in Manila altered and repaired as well as cleaned.

The Chief Health Inspector had for assistant one medical inspector.

On December 7, 1901, the Secretary of the Interior, at the request of the Commissioner of Public Health, authorized my appointment as assistant sanitary engineer. The duties of the position were to correct the sanitary faults in the houses in Manila, giving the greatest share of my attention to all houses in which bubonic plague had occurred.

The magnitude of this task alone was realized by none at the time and by very few since.

Very shortly after taking up the duties the assistant sanitary engineer pointed out the necessity of condemning and destroying a great number of houses in the city and the consequent need of governmental provision of suitable dwellings for the poor thus made homeless. The suggestion for municipal tenement houses received the cordial support of the Superintendent of Government Laboratories, and through his efforts was finally approved by the Board of Health. An effort was made to obtain the necessary legislative action, but in spite of repeated efforts practically nothing has been accomplished other than to prove the feasibility of the plan by one small example.

In October, 1902, an act was passed by the Commission separating the positions of sanitary engineer for the Philippine Islands and city engineer for Manila. Immediately upon the passage of this act I was promoted to the position of sanitary engineer for the Philippine Islands. The duties of this position are to attend to all the sanitary engineering in the Philippine Islands and to such constructions as may be undertaken by the Board Health.

Experience had convinced the sanitary engineer that the sanitary faults found in the city were of so fundamental and varied a character that one man could not hope to effect any great improvement, and the city engineer was requested to utilize the engineering force of the city to obtain the necessary data upon which to base scientific general plans for improvement. This he declined to do to any great extent, on the very correct ground that the force allowed to his city office was totally inadequate for the performance of their proper duties.

The lack of accurate detailed plans has been a great loss to the city, and even at the present day leaves much to be desired. Along some lines much has been accomplished, but the data most needed by this division have been almost wholly neglected. This is not strange, since the engineering force of the city has naturally been utilized to collect the data needed for municipal work. No force being allowed this division, the data required to improve systematically the sanitary condition of private properties have not been collected.

In March, 1902, cholera broke out in Manila, and to this is to be ascribed the disproportionate growth of the medical division of the Board of Health as compared with the engineering division.

The need for the services of doctors was plain to everybody. Authority was easily obtained from the Commission to request the military authorities to assign doctors to the service of the Board of Health. The request was made and the military authorities assigned several doctors to the duty. After the worst of the epidemic was over the Board of Health requested that the employment of a given number of doctors be authorized and that the positions be made permanent. Experience has proved the value of the force and the request was granted, the more readily as the cholera was by no means conquered, and the fear was ever present that the epidemic would break out once more with renewed virulence.

Cholera was killing its hundreds. The conditions which made cholera or any other epidemic more to be dreaded had been overshadowed and almost lost sight of in the fear of the immediate present.

Permanent measures for sanitary improvement had been entirely superseded by temporary measures. So far indeed had this been carried that the sanitary engineering division was instructed to suspend repair work in order that all the efforts of the Board of Health might be concentrated upon the suppression of cholera alone. To get control and keep control of the cholera was the one thought of all. Drugs and disinfectants, shovels and scrubbing brushes were the sanitary agents most readily employed and reckoned of the most value in the emergency. The idea was undoubtedly correct.

Forced into temporary measures by necessity, since that time no effort has been sufficient to turn the energies of the Board of Health from temporary measures of prevention and cure to well-organized efforts to improve general sanitary conditions and thus lessen the danger of epidemics. This division received the present trend of its organization under emergency conditions, and is unsuited for obtaining the greatest permanent results. As a consequence of the growth along somewhat corresponding lines, the sanitary engineering division has been entirely neglected, or worse.

Hampered by legislation, opposed by ignorance, disorganized by order, injured by friction, insufficient in personnel—is it to be wondered at that, despite a field capable of enormous results, comparatively little permanent sanitary work has been accomplished?

The improvements obtained in Manila by this division during the past twelve months are summarized in the following tables. Tabulated statements of certain interesting details are also given.

The work done by the sanitary engineering division outside of Manila is so small that it would not furnish matter for a table.

Statistical report of the repair work of the sanitary engineering division in Manila.

NUMBER OF ORDERS ISSUED.

Month.	Sanitary engineering division.	Health districts.							
		No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.	No. 7.	Total.
1903.									
September		34	16	33	26	15	47	27	198
October		27	11	23	31	69	45	79	285
November		30	12	27	34	18	17	32	170
December		73	6	31	31	26	8	29	204
1904.									
January		52	11	36	23	2	39	35	198
February		11	4	21	16		5	21	78
March	49	3		3	1	2	1	3	62
April	12				1				13
May	73						2		75
June	60								60
July	73		10		8		11	1	103
August	80		19		7		2		108
Total	347	230	89	174	178	132	177	227	1,554

NUMBER OF ORDERS OBEYED.

Month.	Sanitary engineering division.	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.	No. 7.	Total.
1903.									
September		30	6	28	21	11	40	21	157
October		19	4	22	25	56	30	68	224
November		25	2	19	25	16	17	25	129
December		50	1	21	27	22	7	15	143
1904.									
January		18	1	26	21	2	39	20	127
February		2		1	14		5	12	34
March	49	2		1			1	2	55
April	12				1				13
May	71						2		73
June	42								42
July	32				7		10	1	50
August			10						10
Total	206	146	24	118	141	107	151	164	1,057

NUMBER OF ORDERS CANCELED.

Month.	Sanitary engineering division.	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.	No. 7.	Total.
1903.									
September		2	1	5	2	2	6	2	20
October		2		1	4	7	15	1	30
November				8	5	1		1	15
December		11		10	3	1			25
1904.									
January		12		10				5	27
February			1	20				5	26
March				2	1	2			5
July					1				1
August			1		3				4
Total		27	3	56	19	13	21	14	158

Statistical report of the repair work, etc.—Continued.

NUMBER OF ORDERS UNCOMPLETED.

Month.	Sanitary engineering division.	Health districts.							
		No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.	No. 7.	Total.
1903.									
September		2	9		3	2	1	4	21
October		6	7		2	6		10	31
November		5	10		4	1		6	26
December		12	5		1	3	1	14	36
1904.									
January		22	10		2			10	44
February		9	3		2			4	18
March		1						1	2
May	2								2
June	18								18
July	41		10				1		52
August	80		8		4		2		94
Total	141	57	62		18	12	5	49	344

Personnel of the division.

Month.	Engineers.	Inspectors.	Clerks.	Translators.	Draftsmen.	Total.
1903.						
September	2	2	1	1		6
October	2	2	1	1		6
November	2	2	1	1	1	7
December	2	2	1	1	1	7
1904.						
January	2	2	1	1	1	7
February	2	2	1	1		6
March	1	2	1	1		5
April	1	1	1	1		4
May	1	1	1	1		4
June	1	1	1	1	1	5
July	1	1	1	1	1	5
August	1	2	1	1		5

Prosecutions for failure to comply with sanitary orders.

Division or district.	Number prosecuted.	Number of fines.	Number not fined.	Sum of fines.
Sanitary engineering division	40	38	2	₱1,535
Health districts:				
No. 2	1	1		10
No. 4	1	1		20
No. 5	1	1		60
No. 6	2	2		200
No. 7	17	17		440
Total	62	60	2	2,265

Houses condemned.

Disposition.	Health districts.							
	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.	No. 7.	Total.
Action recommended	60	184	39	44	3	3	5	338
Condemned	44	19	39		3	3	4	112
Destroyed	20		38		1		3	62

Plans for new buildings.

Approved	473
Disapproved	148

It is to be observed that the sum of the orders obeyed, orders canceled, and orders uncompleted equals the number of orders issued during the year. Many orders issued in the year preceding were completed in the past year, but the records do not properly show these results. For the ensuing year this detail will be a subject of record.

A reference to the table of orders issued each month shows a striking difference between the number of orders issued in the first five and in the last seven months. This is to be accounted for by a change of policy.

In the latter part of February the position of sanitary engineer for the city of Manila was abolished and the sanitary engineer for the Philippine Islands resumed charge of the repair work in Manila. Up to that time orders for repairs were recommended from each station and after being approved by the sanitary engineer were issued to the house owners. The district medical inspectors with commendable zeal attempted to place their districts in sanitary condition as rapidly as possible. They hastened to get results, and, not being trained for the work, a great number of incorrect recommendations were made. The sanitary engineer for Manila with an inadequate force endeavored to pass on all recommendations and supervise the work after it was ordered. This it was impossible to do properly, and mistakes were frequent, causing much complaint from property owners and occupants.

Immediately after resuming charge of the repair work the sanitary engineer for the Philippine Islands requested that the method of conducting the work be changed so that all repair orders should emanate direct from his office. This request the Commissioner of Public Health granted, issuing orders that thereafter no recommendations for repairs should be furnished from the sanitary stations, but that action from the sanitary stations should be limited to calling the attention of the sanitary engineer to the most insanitary property in the respective districts, with a request that the office of the sanitary engineer take any necessary action.

The efforts of the division were then turned to having orders already issued completed and to getting the records of as much of the past work as possible collected and arranged for ready reference.

Many records have been lost entirely, but such as have been found are now in excellent order, and the work of the division is running along very smoothly. It is not infrequent, however, that the loss of some past record places the division in an embarrassing position. Where office copies are missing, and it is found that repair orders have been previously issued against a house, an effort is made to obtain a copy of the original from the property owner. Owing to the suspicion in which the division is held this can not be done in all cases, but in time it is hoped to overcome this and to get the records into fairly complete shape.

During a large part of April the repair work was entirely stopped, the sanitary engineer and the one inspector being at Culion under orders.

Of the 1,554 orders issued 1,057 were complied with in full, 153 were canceled, and 344 are still uncompleted.

The quality of the work done in Manila is wretched. It is only a matter of time when it will once more be necessary to have most of these houses again repaired in the same way. It is rare indeed that a property owner really tries to place his property in first-class sanitary condition. Everything is done with the intention of avoiding the consequences of disobeying an order of the Board of Health, and all the skill and energy shown is developed in doing the poorest and cheapest work which can pass an inspection for completion.

Of the 153 orders canceled some recommended bad constructions, but many were correct in so far as they went but were not complete enough. and if the repairs had been made as ordered the properties would not have been placed in even such sanitary condition as the poor public facilities of Manila permitted.

It is the intention to take further action on all uncompleted orders and either to enforce or cancel them, as may seem best.

It was requested that each sanitary inspector be detailed in turn to the office of the sanitary engineer to there receive instructions as to the requirements of the repair work. It was intended that when a degree of efficiency had been reached satisfactory to the sanitary engineer the sanitary inspector should be returned to his station and should then forward the recommendation for the repairs to the houses in his district. It was hoped by this means, within a year, to have all the sanitary inspectors sufficiently instructed so that the old system could be resumed. but with a much more intelligent conception of the work. Due to the pressure of their other duties this request was refused at the time by the Chief Health Inspector, but with the understanding that if it were practicable in the future it would be done. Only the necessities of the case prompted a request to make use of a larger portion of the present organization for the repair work, as it would be but another step along the wrong path. The sanitary condition of the city would improve more rapidly with a larger force of this kind, but the property owner would pay a high price for the improvement. Reiteration has proved useless, but it must be once more repeated, a trained force would be less expensive.

The question of condemning houses is a very serious one in Manila. There are not enough houses in the city to shelter properly the population, and because of cheaper rent it is the worst houses which are the most crowded. To destroy one of these houses drives the poor people to seek shelter in places almost equally bad and already overcrowded. It is therefore with the greatest reluctance that this division recommends the destruction of a shelter of any kind. In spite of all reasons to the contrary in the past year it has recommended that 338 houses be condemned and destroyed. In the majority of instances since March it has added the request that the destruction of the houses be postponed until December or January, the end of the rainy season. This will enable the occupants of the old places to have some kind of shelter during the rains and will enable the more provident to build small nipa houses in the district of light material. Nipa houses cost very little, and few would be unable to build themselves houses if a little industry were shown.

Municipal tenement houses should have been built long ago to meet this problem, and they would have proved a paying investment to the city as well as a blessing to the poor. The street railroads will undoubtedly help to spread the population and reduce the congestion in the poor districts.

Of the 338 houses recommended condemned and destroyed 112 have been condemned and 62 have been already destroyed.

This by no means covers all the poor houses which have been destroyed during the year. The city engineer has obtained the condemnation and destruction of a much greater number of structural defects, and many owners have destroyed old houses in order to make room for better ones.

A great deal of building is being done in Manila.

All plans for new buildings are now forwarded to this division for examination, and must be approved from a sanitary viewpoint before the city engineer will issue a building permit for the same. In the past more or less slips occurred, some plans were lost, others delayed, and yet others at times received approval without having been approved by the sanitary engineer.

The system is now working smoothly and rapidly, so that no plans are lost, very little delay ever occurs, and every plan is passed on by the sanitary engineer before a building permit is issued.

Four hundred and seventy-three plans for new houses have been approved. Of these 148 were first disapproved for faults in sanitary arrangements and returned to the architect for correction, and in many cases, even after detailed instructions, it has been necessary to reject plans several times—in some few cases to reject them entirely.

Before these plans reach the sanitary engineer they have passed through the office of the city engineer, where an even higher percentage is disapproved for various reasons. This indicates the very inferior quality of the plans submitted.

A design not sufficiently faulty to warrant rejection must receive approval. It is perfectly evident in many cases that with the same expenditure of money a much better house could be built.

The requirements to receive an architect's license should be made higher and more rigid. The present low standard has permitted men unfitted for the work, and incapable of learning it, to obtain licenses. These men draw plans and supervise construction at a less figure than will men competent to do the work. As a consequence ignorant persons (they are the majority) employ them, not realizing that through incompetence these uneducated and ignorant architects cost much more in the end than would higher-class men. The standard must not be placed too high, for there are scarce six competent architects in business in Manila.

Even after a satisfactory plan is accepted the continual supervision of inspectors is needed to enforce the construction in accordance with the essential details which governed acceptance of the plan. Any number of instances could be cited to illustrate this point. Two exceptionally flagrant cases which have recently come to my notice will serve.

A permit was obtained to erect a stable in the rear of a long row of houses. Investigation showed that instead of erecting a one-story stable a small two-story house had been built.

In another case the street face of a house had been built according to plan, while the interior arrangement had been so completely changed that it was unrecognizable. The house from being thoroughly well planned had been changed to an idiotic mess, contrary to good sense, good taste, and good law.

The building department of Manila has not sufficient inspectors to attend properly to this work, nor are the salaries paid sufficient to obtain the class of men desirable for the positions. More assistance should be authorized and at higher salaries.

To enforce compliance with orders issued through this division it has been necessary in a number of cases to institute legal proceedings in the court. Strange to say, these records appear to be less complete than any other. From January on the record is fairly complete and shows 47 cases prosecuted. In 45 of these fines were imposed, 1 was dismissed at the request of the sanitary engineer, and 1 through default, the time for which the case was set having been misunderstood in the sanitary engineering division.

Previous to January records have been found of only 15 cases, in all of which fines were imposed. This record is known to be very incomplete. Fines to the amount of ₱2,265 were imposed in these known cases. It is hoped through the aid of the Prosecuting Attorney's office and the municipal court records to make this record complete.

Much of the success attained in the repair work is due to the cordial and able support received from the Prosecuting Attorney and his assistants.

During July and August the temporary employment of a draftsman was authorized, and during this period the plans of authorized constructions were revised and plans of new designs were drawn up for submission to the Board of Health for approval. Specifications were drawn to be attached to each design.

The purpose in making these plans and specifications was to obtain authority from the Board of Health for sanitary but cheaper constructions than those then authorized. Blue prints are now given to property owners to aid them in understanding orders received. A good effect is already to be observed on the work.

Owing to the fact that no engineering assistance is allowed to the division, it has been impossible to obtain sufficiently accurate data on which to base orders for repairs in some of the largest and most insanitary property in the city. It has therefore been thought best to rely on enforcing a certain degree of cleanliness rather than put the owners to heavy expenses for repairs which could not be guaranteed to place the properties in sanitary condition.

Up to the 1st of January the pail-conservancy system was subordinate to the sanitary engineering division and increased the duties of the sanitary engineer, Manila, to a considerable extent. The system and all its records were transferred to the municipal government January 1, 1904, and the superintendent will undoubtedly render a report to the city engineer covering the entire year.

In April, by order of the Secretary of the Interior, the sanitary engineer for the Philippine Islands accompanied the Commissioner of Public Health to the Island of Culion to investigate the possible obtainable water supply for the town of Culion and to serve on the committee appointed to select a new site for the leper colony.

The sanitary inspector detailed to the sanitary engineering division accompanied the sanitary engineer to assist him in collecting any desired engineering data. While absent on this trip the repair work in Manila ceased, and upon returning to the city much complaint was received from those who had been under orders to make repairs and had not been able to get explanations of such points as they did not understand. Much of this complaint was made for effect, but the effect on the authority for the division was felt for a couple of months afterwards.

It was intended that the work at Culion should be under the direction of the sanitary engineer, but owing to the lack of assistance in the division and to the confining nature of his duties in Manila he has been unable to attend to the matter, and it has been tacitly removed from his charge.

A number of minor matters have been attended to during the year, such as a small piece of filling at San Lazaro, plans and estimates for proposed provincial hospitals, and investigation at Cebu, instructing presidents of provincial boards of health in matters of sanitation, the rearrangement of the drainage system at Bilibid, and matters of a similar character.

Under the law it is the duty of the chief of the sanitary engineering division to attend to the water supplies, the drainage, and, in general, the sanitary arrangements of over 7,000,000 people distributed throughout these Islands.

His division consists of 1 clerk, 1 interpreter, and 1 sanitary inspector detailed from the medical division, and he desires herein to express his appreciation of their faithful and earnest efforts to promote the efficiency of the division.

In the last appropriation an increase of one Filipino draftsman was allowed, and within the last three weeks another sanitary inspector has been detailed for temporary duty. The division will need some further increase before it will be able to cover the entire field of its duties.

In making further appointments to this division it might possibly avoid confusion to define which position ranks as chief of the sanitary engineering division.

The sanitary engineer for the Philippine Islands has no recommendations to make other than those contained in the report of last year and in his estimate for funds submitted in December, 1903.

Very respectfully,

H. D. OSGOOD,
Sanitary Engineer for the Philippine Islands.

The COMMISSIONER OF PUBLIC HEALTH,
Manila, P. I.

REPORT OF THE DISBURSING OFFICER BUREAU OF PUBLIC HEALTH, SEPTEMBER 1, 1903, TO AUGUST 31, 1904.

MANILA, P. I., *September 7, 1904.*

SIR: I have the honor to submit the following statement showing the disbursements made for account of the Board of Health for the Philippine Islands by this office during the period from September 1, 1903, to August 31, 1904:

Item.	Disbursements made chargeable to fiscal year—				Total disbursements.[1]
	1902.	1903.	1904.	1905.	
Salaries and wages		₱1,678.62	₱323,295.18	₱32,687.21	₱357,661.01
Support of hospitals, plants, and stations		1,095.08	118,144.66	11,389.55	131,229.29
Suppression and extermination of epidemic diseases and pests	₱1,025.41	4,647.93	18,619.02	1,175.77	25,468.13
Transportation	48.70	334.33	18,407.58	944.04	19,734.65
Contingent expenses		15.00	4,424.54	111.30	4,550.84
Public works		577.15	4,638.00		5,215.15
Installation of pail system:					
Contingent expenses		42,903.40	24,882.05		67,785.45
Salaries and wages			36,461.61		36,461.61
Total	1,074.11	51,251.51	548,872.64	46,907.87	648,106.13

[1] Philippine currency.

Very respectfully,

MILLER JOBLIN,
Disbursing Officer of the Board of Health.

The COMMISSIONER OF PUBLIC HEALTH,
Manila, P. I.

REPORT OF THE CASHIER OF THE BOARD OF HEALTH FROM SEPTEMBER 1, 1903, TO AUGUST 31, 1904.

MANILA, P. I., *September 9, 1904.*

SIR: I have the honor to hand you the attached four statements showing in detail the total amounts received by the cashier of the Board of Health during the period from September 1, 1903, to August 31, 1904, viz: Exhibit A, table showing number of animals inspected by veterinary division and amounts collected therefor and deposited with the Treasurer of the Philippine Islands; also those inspected gratis for the Civil and Military Governments; Exhibit B, table showing number of burial and other permits issued and the amounts collected therefor and deposited with the City Assessor and Collector; Exhibit C, table showing number of units of vaccine virus and bottles of serums sold and amounts collected therefor and deposited with the Bureau of Government Laboratories; Exhibit D, miscellaneous funds collected by the cashier of the Board of Health and deposited with the Treasurer of the Philippine Islands.

Very respectfully,

MILLER JOBLIN,
Cashier of the Board of Health.

The COMMISSIONER OF PUBLIC HEALTH,
Manila, P. I.

EXHIBIT A.—*Veterinary division: Table showing number of animals inspected by the veterinary division and amounts collected therefor and deposited with the Treasurer of Philippine Islands; also those inspected gratis for the Civil and Military Governments during the year September 1, 1903, to August 31, 1904, inclusive.*

Month.	Cattle.		Carabaos.		Horses.		
	Paid for.	Gratis.[1]	Paid for.	Gratis.[1]	Paid for.	Gratis.[1]	Gratis.[2]
September	4,111		58	424	232		
October	2,716	6	38	255	175		
November	4,470	35	48	617	330		298
December	3,557	10	28	294	298		73
January	3,731	29	35	202	175		
February	3,499	19	60	3	273		102
March	2,950		57		212		21
April	2,648	10	67	271	816	21	204
May	2,984	39	31	189	249	1	
June	2,617	198	32	173	271	9	
July	2,646	205	50	789	149		
August	2,970	69	23	247	128	214	3
Total	38,899	620	527	3,464	2,803	245	701

Exhibit A.—*Veterinary division: Table showing number of animals inspected by the veterinary division and amounts collected therefor, etc.*—Continued.

Month.	Hogs.		Sheep.	Goats.	Other animals.		Amount collected.	
	Paid for.	Gratis.[1]	Paid for.	Paid for.	Paid for.	Gratis.[1]	Local currency.	Philippine currency.
September	3,247		140	58	11		$104.82	₱1,355.30
October	3,500		115	64	11		111.29	1,027.00
November	3,327	4	250	60	7		105.11	1,549.40
December	3,462		168	39	10		939.25	594.50
January	3,718		60	32	4		193.43	1,154.10
February	3,908		9	47	12		103.29	1,309.90
March	3,920		11	79	6		123.75	1,124.70
April	4,391		9	34	10		113.98	1,222.20
May	3,937		26	41	13	2	32.38	1,242.60
June	3,738		16	34	14		57.20	1,144.60
July	4,178		9	56	5	7		1,131.00
August	4,149		5	40	18	11		1,162.30
Total	45,475	4	818	584	121	20	1,884.50	14,017.60

[1] Civil Government. [2] Military Government.

Exhibit B.—*Burial division: Showing number of burial and other permits issued and the amounts collected therefor and deposited with the City Assessor and Collector during the year September 1, 1903, to August 31, 1904, inclusive.*

Month.	Burial.	Niches, adults.		Niches, children.		Exhumation.	
		Paid for.	Gratis.	Paid for.	Gratis.	Paid for.	Gratis.
September	1,061	22		11		17	
October	1,130	25		14		60	
November	930	13		11		47	
December	858	15		9		27	
January	761	9	1	7		30	
February	660	21		8		13	
March	710	23		2		27	
April	740	14	3	7		45	
May	736	13		4		36	1
June	763	14		10		29	
July	834	18		10		37	
August	1,028	14		9		50	
Total	10,211	201	4	102		418	1

Month.	Prorogues.		Transcripts from records.		Transit.	Amount collected.	
	Adult.	Children.	Paid for.	Gratis.		Local currency.	Philippine currency.
September	2		4			$900.02	₱782.00
October	3		6			872.28	1,223.40
November	1		4		1	716.38	717.80
December			1		5	999.00	388.50
January	4		4			361.25	699.70
February	2		5		1	323.95	976.10
March	2		6		1	501.05	881.10
April	1	2	3	1		305.25	969.50
May	1	1	3		1	187.12	883.90
June	1		3			204.60	985.30
July			5			148.76	1,230.00
August	1		6			106.70	1,298.80
Total	18	3	50	1	9	5,626.36	11,036.10

EXHIBIT C.—*Sale of vaccine virus and serum by the Bureau of Health: Table showing number of units of vaccine virus and bottles of serum sold and amounts collected therefor and deposited with the Bureau of Government Laboratories during the year September 1, 1903, to August 31, 1904, inclusive.*

Month.	United States Army.	United States Navy.	Bureau of prisons.		Miscellaneous.		Total.		Amount collected.	
			Vaccine virus.	Bottles serum.	Vaccine virus.	Bottles serum.	Vaccine virus.	Bottles serum.	Local currency.	Philippine currency.
September	3,940				265		4,205		$14.40	₱118.20
October	4,905		2,100	59			7,005	59		375.34
November		500			70		570			19.20
December	5,470				50		5,520			167.10
January	3,180	500			95	2	3,775	2	2.40	116.10
February	3,030				60	4	3,090	4	4.80	94.50
March	3,050	25			375	1	3,450	1		111.66
May		(1)								12.50
Total	23,575	1,025	2,100	59	915	7	27,615	66	21.60	1,014.60

[1] Collection.

EXHIBIT D.—*Miscellaneous funds collected by the cashier of the Board of Health and deposited with the Treasurer of the Philippine Islands during the year September 1, 1903, to August 31, 1904, inclusive.*

Month.	Board at San Lazaro Hospital.[1]	Sale of public civil property.[2]	Reimbursement for rat traps lost by rat catchers.		Miscellaneous money left at San Lazaro Hospital by deceased patients.		Total.	
			Local currency.	Philippine currency.	Local currency.	Philippine currency.	Local currency.	Philippine currency.
September	₱48.00	₱44.00						₱92.00
October	60.00							60.00
December	48.00							48.00
January			$31.50	₱31.30			$31.50	31.30
February	928.00				$31.06	₱0.04	31.06	928.04
March	120.00	466.00						586.00
April	120.00							120.00
Total	1,324.00	510.00	31.50	31.30	31.06	.04	62.56	1,865.34

[1] Composed of officers and employees of that institution (Philippine currency).
[2] By authority of Secretary of the Interior (Philippine currency).

REPORT OF THE CHIEF OF THE VETERINARY DIVISION FROM SEPTEMBER 1, 1903, TO AUGUST 31, 1904.

VETERINARY DIVISION,
Manila, P. I., September 15, 1904.

SIR: By a resolution of the Philippine Commission dated July 27, 1903, a veterinary division under the control of the Board of Health was authorized for the purpose of investigating and suppressing diseases of carabaos, cattle, horses, and other animals in the Archipelago, such as rinderpest, surra, glanders, and other contagious diseases.

Efforts were immediately made to obtain veterinarians from the States, and inoculators were also employed for this purpose. The first veterinarian so employed reported in September, 1903.

The veterinary department of the Board of Health has been in existence since April 22, 1899, being organized by an order of the Provost-Marshal-General. Its duties were to inspect all animals arriving in Manila, the inspections of animals slaughtered in the matadero for food purposes, the care and treatment of public animals, and inspection of public and private stables with reference to their sanitary condition and the health of the animals.

The force of the department at that time was one veterinarian and three native inspectors.

The number of animals inspected on arrival in Manila and the fees collected for same have shown an annual increase. The care of public animals and inspection of stables throughout the city have received diligent attention, and the general health of public and private animals has improved.

Surra, a disease which has made its appearance since the American occupation, is still present and is the cause of a large number of deaths among horses. It is also found in carabaos and cattle.

Glanders (farcy), which is always present, is under good control, few cases being noticed now upon the streets and a less number reported than in former years.

Epizoötic lymphangitis, a contagious disease closely resembling farcy, is quite prevalent, but this condition is readily amenable to treatment, and the death rate is very small.

The appended table of inspections, condemnations, and fees collected clearly shows the work of the division in Manila.

In reference to fees collected for the inspection of animals arriving in Manila, it seems that the original intention was that fees should be collected solely for the inspection of animals slaughtered for food purposes. No provision was made for the inspection of or the collection of fees for animals shipped to the provinces.

Owing to the changed conditions this work is increasing yearly, all inspections so made being at the request of owners shipping cattle to other points for work or slaughter, and for which no fee is charged.

Since all the work of the Board of Health except inspections made by the veterinary division is performed gratuitously, and further, since it is the intention of the municipality to institute stockyards wherein all animals arriving in the city shall be entered, it is recommended that the fees collected for inspection be abolished. However, it is not recommended that the inspections be abolished, but that they be continued under the same conditions as at the present, and that all live stock shipped from Manila to provincial ports be subject to the same inspection, and that a certificate of health be issued by the veterinary division to accompany such stock.

The veterinary division was actually established by a resolution of the Philippine Commission under the date of February 27, 1904, to take effect April 1, 1904, and was to consist of a chief veterinarian, 4 veterinarians, 4 emergency veterinarians, 15 American inoculators, and 5 native inoculators.

The positions of veterinarians were all filled, with the exception of two emergency veterinarians, before the first of the year, one being appointed from veterinarians in the Islands and five coming from the States.

In July, 1903, the chief veterinarian was sent to Shanghai to superintend the inoculation and inspection of the carabaos bought at that point by the Civil Government, and did not return until May 12, 1904.

Up to April 1, 1904, the supervision of the work of the veterinarians and inoculators was under the director of the serum laboratories. Much of the work done was in connection with the carabaos shipped from Shanghai. Other diseases and conditions appeared in the various herds of carabaos distributed in the Islands, and the losses from these causes were larger than from rinderpest, surra being the most fatal.

Since the above date the veterinarians of the division have inoculated large numbers of carabaos in the provinces with antirinderpest serum. The force could have accomplished much more if the supply of serum had been larger.

The appended table shows the number of inoculations and the provinces in which the work was done.

The division also examined over 2,000 animals for surra, finding 112 positive cases. This includes 1,042 carabaos in Manila, of which 40 were found positive.

Attention is invited to the special reports by veterinarians of this division.

Very respectfully,

JOHN G. SLEE,
Chief of the Veterinary Division.

The COMMISSIONER OF PUBLIC HEALTH,
Manila, P. I.

Inspections of animals on arrival in Manila.

Month.	Number of inspections.	Cattle.	Carabaos.	Horses.	Hogs.	Sheep.
September	463	4,111	482	247	3,232	140
October	437	2,716	293	175	3,500	115
November	365	4,505	665	628	3,331	250
December	327	3,567	822	366	3,462	168
January	284	3,760	237	175	3,718	60
February	360	3,518	63	375	3,906	9
March	352	2,950	57	233	3,920	11
April	427	2,658	338	541	4,391	9
May	396	3,023	220	250	3,947	26
June	363	2,815	205	280	3,738	16
July	473	2,851	339	149	4,178	9
August	517	3,039	270	345	4,149	5
Total	4,764	39,513	3,991	3,764	45,474	818

Inspection of animals on arrival in Manila—Continued.

Month.	Goats.	Other animals.	Total.	Philippine currency.	Spanish-Filipino currency.
September	58	11	8,281	₱1,355.30	$104.82
October	64	11	6,874	1,027.00	111.29
November	60	7	9,446	1,549.40	105.11
December	57	10	7,952	594.50	939.25
January	32	4	7,986	1,154.10	193.43
February	47	12	7,932	1,309.90	103.29
March	79	6	7,256	1,124.70	123.75
April	34	10	7,981	1,222.20	113.98
May	41	15	7,522	1,242.60	32.36
June	34	14	7,102	1,144.60	57.25
July	56	12	8,094	1,131.00	----------
August	40	29	7,877	1,162.30	----------
Total	602	141	94,303	14,017.60	1,884.53

Number of animals condemned upon inspection.

Month.	Carabaos.	Condemned and cremated.			Total.
		Horses, for surra.	Horses, for glanders.	Other animals.	
September	----------	----------	21	23	44
October	----------	----------	9	38	47
November	----------	1	7	58	66
December	----------	21	23	95	139
January	88	1	18	20	39
February	15	1	21	33	55
March	----------	9	15	25	49
April	----------	5	6	24	35
May	----------	4	13	46	63
June	----------	----------	5	----------	5
July	----------	----------	18	7	25
August	----------	----------	9	6	15
Total	103	42	165	375	582

Number of animals slaughtered and condemned in matadero.

Month.	Cattle.	Hogs.	Sheep.	Goats.	Total.	Condemned and cremated.		Total.
						Cattle.	Hogs.	
September	2,681	5,408	159	--------	8,248	15	22	37
October	2,412	5,663	125	--------	8,200	8	16	24
November	2,124	5,040	81	--------	7,245	5	12	17
December	2,511	5,363	123	--------	7,997	13	15	28
January	2,384	5,256	138	--------	7,778	1	13	14
February	2,049	5,209	22	--------	7,280	6	22	28
March	2,001	4,952	4	1	6,958	2	13	15
April	2,130	5,044	1	5	7,180	3	28	81
May	1,895	5,376	16	--------	7,287	5	21	26
June	1,935	4,844	7	6	6,792	7	22	29
July	2,102	5,248	1	9	7,360	--------	18	18
August	2,053	4,911	--------	10	6,974	3	16	19
Total	26,277	62,314	677	31	89,299	68	218	286

Inoculations against rinderpest from March 1 to August 31, 1904.

Province.	Inoculations.		Total.	Deaths.		Total.
	Serum.	Simultaneous method.		Serum.	Simultaneous method.	
Ambos Camarines	74	377	451	----------	----------	----------
Bulacan	48	364	412	----------	30	30
Cebu	248	106	349	9	33	42
Cagayan	48	2,257	2,305	----------	48	48
Burias	1,173	18	1,191	----------	----------	----------
Negros (Island)	632	----------	632	----------	----------	----------
Pampanga	1,044	----------	1,044	----------	----------	----------
Tarlac	560	----------	560	----------	----------	----------
Panay (Island)	381	289	670	2	21	23
Benguet Road	250	----------	250	1	----------	1
Union	1,455	----------	1,455	----------	----------	----------
Total	5,908	3,411	9,319	12	132	144

A PRELIMINARY REPORT ON THE PRESENCE OF ANTHRAX IN THE PHILIPPINE ISLANDS.

By R. H. McMullen, D. V. S., *Veterinarian, Board of Health.*

HISTORY.

Anthrax is the most ancient of the infectious diseases of animals. No doubt can be entertained of its antiquity, as under various names it has been referred to in the oldest records. Moses mentions it as the "sixth plague of Egypt," and speaks of its transmission to man. Previous to our era it is described by Homer, Ovid, Plutarch, and Lucretius. The Arabians knew it as "Persian fire." Several epizoötics occurred in Italy in the sixteenth century. Gloss anthrax appeared in France in 1662, and later it extended all over that country. Subsequently, in an epizoötic form, it existed in Germany, Poland, Finland, and Russia.

In 1855 Pollender made it known that in 1849 he found large numbers of fine sticks in the blood of cattle attacked by anthrax. This fact was also noted in 1850 by Davaine, who in 1863 recognized that these elements were bacteria and was the first to apply the "germ theory" to anthrax. This investigator's determination thus marked a wonderful step toward the advancement of medical science, as previous to that time the cause of anthrax and the nature of all contagious diseases were unknown.

In January, 1904, the writer was sent to the pueblo of Tagudin, Province of Ilocos Sur, Luzon, to investigate reports of a disease which prevailed among the animals in that locality. The outbreaks antedated American occupation and occurred at the conclusion of the rainy season each year. The disease showed the most virulency at the beginning of each outbreak, and proved fatal in from two to three days. Carabaos, cattle, and horses succumbed. A microscopical examination of the blood of the viscera revealed the bacillus anthracis. Cultures were made at the Government Laboratories, Manila.

The attention of the writer was also called to the death, after a sickness of two hours, of seven suckling pigs. The mother remained healthy. The statement in this instance of death by anthrax must be taken with an amount of reserve, because a microscopical examination of the blood was not made. The mother had access to anthrax blood and meat.

A dozen dogs feasted upon the carcass of a carabao that had died of anthrax, and they all died in a few hours. No autopsies were held.

In April, 1904, the death of two mules from anthrax was reported at Camp Wallace, Union, by Veterinarian Lusk, Second Cavalry, United States Army. These animals were of a pack train which plied between Camp Wallace and Benguet, and the infection was without doubt picked up along the trail.

CAUSE.

Anthrax is caused and determined by the presence of a microscopic organism known as the bacillus anthracis. The bacilli appear in the living organism in the form of straight rods. Their dimensions vary according to the species of animals, also the individuals in which they are found. They are larger than most other bacilli, and in general their length is nearly double the diameter of a red-blood corpuscle. Examined by straining they appear in joints, the extremities of the elements being slightly larger than the body, and are marked by a central depression, the concavities of which form a free oval space when the rods are united end to end. A series of rods thus arranged form a figure which somewhat resembles bamboo.

Reproduction takes place by growth in their length, and by transverse segmentation. Outside of the body the bacilli are transformed into filaments and may attain one hundred times the length of the primary element. At determined spaces are noted ovoid corpuscles, the spores, which are freed by the destruction of the covering membrane of the filaments.

The bacilli may be cultivated in various media. Upon gelatin the cultures show a flaky aspect, and upon examination under the microscope the bacilli appear as an irregular packing of filaments in an arrangement resembling twisted rope.

BIOLOGICAL PROPERTIES OF THE BACILLI.

The bacilli vegetate in the blood, the plasma and the serum, the aqueous humor, in milk, animal matter, and excretions mixed with the soil. The bacillus is aerobic, its development depending upon the presence of oxygen. The growth of the bacillus ceases below 12° C. and above 45° C. Light hinders the development of and putrefaction kills the bacillus. It also shows very little resistance to heat and drying.

The reproduction of the bacilli outside of the organism is performed by lengthening, and the appearance in their protoplasm of small corpuscles which soon constitute spores. The spore in turn gives birth to the bacillus by sprouting, after which the spore disappears.

BIOLOGICAL PROPERTIES OF THE SPORES.

Spores possess remarkable vitality; they are resistant to the temperature of boiling water, intense cold, and years of desiccation.

DISTRIBUTION AND SOURCES OF INFECTION.

Anthrax infection is found in the five grand divisions of the earth's surface, and in the following countries: Germany, France, Russia, Austria, Switzerland, Italy, England, Spain, Turkey, Australia, United States (the lower Mississippi Valley and elsewhere), the East Indies, Persia, China, and the Philippine Islands.

Anthrax is most common in the ox; and the different domesticated species may be classed according to their respectivity in the following order: Ox, sheep, carabao, goat, horse, cat, dog, and pig.

Anthrax usually appears as an infectious, enzoötic disease, stationary in some districts. Its development is favored by a certain composition of soil and conditions of moisture and temperature. It exists in localities with soil rich in organic matter, in regions of a swampy character with impervious subsoil, and in tracts of lowlands exposed to submersion.

The infected lands about Tagudin are low, and are located between the rivers and the adjacent highlands. These areas abound in organic matter deposited by the inundations of the rainy season. After the floods subside all depressions are left covered with stagnant pools. The hot, dry season follows and the smaller streams and pools disappear. Animals then graze upon the pastures and vegetation of the lowlands from which the water has subsided.

Before the advent of the Americans no effort to incinerate or bury the carcasses was made.

The temperature also plays an important part. An elevated temperature after heavy rains is most favorable for the development of the bacilli.

Anthrax is seldom conveyed directly from a diseased to a healthy animal, but rather through the agency of the secretions or the excretions of a sick animal, or by the intermediation of man, insects, or soiled utensils. It was formerly thought that the disease was of miasmatic origin. The bacilli gain entrance into the living organism by the alimentary tract, the lungs, or the skin. The most common form of infection is by the alimentary tract, and is usually produced by the ingestion of spores with food or drink. The elements penetrate the mucous membrane of the intestines, and thus enter the circulation. The most general source of infection is by fodder from ground contaminated by the burial of anthrax carcasses.

Cutaneous anthrax does not occur nearly as frequently as the intestinal variety. In this form the bacilli gain access to the organism through wounds in the skin.

The rarest form is by inhalation of the spores.

SYMPTOMS.

The symptomatology varies with the species, the individual, and according as the disease begins in the intestines, the lungs, or the skin; also with the severity of the attack. The invasion is always sudden, the development rapid, and death usually occurs in one hour to several days.

In the apoplectiform variety the symptoms are those of cerebral apoplexy. The animals suddendly stagger and fall and bloody liquids exude from the natural orifices. Death follows in one to two hours. They often die while at their meals, during work, or are found dead in the stable or pasture.

The acute type has a duration of twelve hours to two days, and is usually ushered in by an elevated temperature. Feeding and rumination cease, the extremities are cold, the flanks contracted; the animal is dull, weak, and constipated, and tenesmus is present. These symptoms are followed by uneasiness, the breathing becomes labored, the tongue is protruded, gait staggering, the animal stamps and bellows, and convulsions are succeeded by death.

The subacute form is more prolonged, lasting three to seven days. The clinical symptoms are nearly similar to those of the acute form, though better defined and less rapid. Remissions are frequent.

In cutaneous anthrax, which is observed in the horse and ox, the tumors are circumscribed, hard, hot, and painful at the start, and later they become cold, gangrenous, and insensible to pain. Cases of recovery are more numerous than in the other forms.

Anthrax tumors are observed in the mouth, larynx and pharynx, and in the rectum. This is the form usually seen in the pig (gloss anthrax). The horse and ox show the acute, the apoplectiform variety, and the anthrax tumors most frequently; in sheep we note the apoplectiform variety; in the dog, anthrax tumors.

DIAGNOSIS.

In the acute and subacute forms the diagnosis is based on the finding of the bacilli and on the infectious character of the disease. Quite often the bacteriological examination of the blood gives a negative result, because the bacilli may be located in the internal organs. It is therefore advisable to obtain blood from the liver by means of the trocar. The bacilli are less numerous in the blood in proportion to the more rapid course of the infection.

During life the diagnosis is somewhat difficult. The symptoms may be confounded with those of pulmonary or cerebral congestion, poisoning, or septicemia. Anthrax is generally recognized only after death. Microscopical observations are not alone sufficient. The diagnosis requires a search for the bacillus. Inoculation is another means of diagnosis.

MORBID ANATOMY AND PATHOLOGY.

The principal alterations are observed as follows: Hemorrhages in nearly all the organs; sero-gelatinous and hemorrhagic infiltrations of the subcutaneous, submucous, and subserous connective tissue; tumefaction of the spleen and parenchymatous inflammation of the liver and kidneys; dark, tarry condition of the blood; the presence of the bacilli in all the tissues, and especially in the blood of the viscera.

The cutaneous vessels are obstructed with dark blood. The derma contains hemorrhagic centers. In anthrax due to inoculation hard nodules, varying in size, are seen on the skin, and their tissues are necrosed.

The subcutaneous connective tissues show hemorrhages and infiltration of a yellowish, jelly-like serum. This is well marked in the pharyngeal and laryngeal regions.

The muscles have a yellowish or dark-red shade and are friable. Intramuscular hemorrhages are numerous.

The spleen is hypertrophied; the pulp is softened, dark and semiliquid, and gravitates in the distended capsule.

The liver and kidneys are hyperemic and show many hemorrhages.

The lymphatic ganglia are edematous and marked by hemorrhages.

The mucous membrane of the stomach and intestines is the seat of hemorrhages. The intestinal contents are bloody.

The lungs are congested; the brain shows hemorrhagic centers, and the genito-urinary organs contain hemorrhagic areas. The urine is rarely bloody.

The heart and the large veins are filled with dark blood. The blood is non-coagulable, dark red, and as if varnished on its surface.

The cadavers are much bloated soon after death, and decomposition sets in quickly. The natural orifices give exit to bloody mucus. The rectum is often prolapsed. These various alterations may be wanting in the apoplectiform variety.

TREATMENT.

The prophylatic treatment is the most important. It is necessary to destroy the carcass and disinfect the surroundings thoroughly. Cadavers should be burned or buried unopened at a depth of six feet, with a liberal sprinkling of lime both under and over the carcasses. Burial places should be located at a reasonable distance from any running water.

PREVENTION.

Improvements in the soil, such as drainage, and the preventing of animals from grazing on infected areas contribute to the disappearance of the disease.

Animals which recover from anthrax possess an immunity. This gave rise to the discovery by Pasteur in 1881 of means by which to create immunity artificially, which is accomplished by inoculating with the bacillus deprived of part of its virulence.

Anthrax in man (malignant pustule) usually has as a starting point a wound, and secondarily anthrax fever (butchers', tanners', veterinarians'). Less frequent the infection is by inhalation (wool sorters' disease). Malignant pustule generally terminates fatally.

SPECIAL REPORT ON SWINE PLAGUE AND HOG CHOLERA.

By MURRAY J. MYERS.

INTRODUCTORY.

These two diseases resemble each other very closely in their symptoms, and it requires an examination of the internal organs after the animal's death, and in many cases a microscopical study, to clearly distinguish them. The difficulty of distinguishing between the two diseases is, therefore, of no great consequence in the practical work of controlling them. It is more important to know that one or the other of these diseases is present because the knowledge leads at once to the adoption of measures applicable to the treatment of infectious diseases. Therefore, I shall speak of them as one and the same disease.

HISTORY.

During the month of April last there was reported a disease among hogs in the Province of Bulacan which in all probability, from the description, was hog cholera or swine plague. If I remember correctly there were 400 head of hogs reported to have died during the four months previous to April last. This particular outbreak seems to have subsided after about four months' duration.

Hog cholera and swine plague are supposed to have been introduced into the United States about the year 1858 from continental Europe, while in the latter country a disease resembling our hog cholera of to-day is spoken of in ancient literature.

CAUSE.

Both hog cholera and swine plague are caused by bacteria which have now been so carefully studied that they may be easily identified. The germs of hog cholera are slightly larger and longer than those of swine plague—are more resistant to climatic conditions and other influences that affect low forms of life. They obtain entrance to the body through food, water, and air. Young pigs are especially susceptible and many die, when older ones have a mild attack or escape altogether. The intestines are the primary seat of the infection. The disease of hog cholera is more easily communicated than swine plague. The germs of swine plague are believed to gain entrance to the body mainly through the inspired air. The older and fatter hogs give the greater mortality. The lungs are the primary seat of infection. The swine-plague germs are not nearly so resistant to climatic conditions and are very delicate and easily destroyed.

Hog cholera is easily produced by exposing well hogs to diseased ones, by feeding to well swine the carcasses of hogs that died from the disease, and by hypodermic injections of cultures of the germ. Both diseases may be produced by injecting cultures of their respective germs directly into the blood stream.

SYMPTOMS.

The symptoms of the twó diseases are alike. They vary according to the severity of the attack. Often the hog will be found dead before it is known to be ailing, while in chronic cases it may be sick for two or three weeks. The condition of the eyes give early indications of the disease. The mucous membranes become reddened and the lids gummy and glued together. The pigs appear chilly and lie in the sun when they would ordinarily remain in the shade. They will hunt for litter under which to secrete themselves. The appetite is lost and diarrhea is developed. In the earliest stages constipation may be present. The attack may or may not be attended with a cough which may be frequent or only when the animal gets up from its bed. In breathing, the ribs seem to remain quiet, and a quick jerk is seen in the flank at each expiration. Lameness in one or more limbs and a stiffness of the back may be noticed. In swine plague the respiratory symptoms are early developed and more characteristic than in hog cholera. A high temperature is always present, which may reach 106° to 108° F. The skin is often congested and red on the inner surface of the legs and around the abdomen. The color varies from a pinkish red to a very dark red. Thickening and cracking of the ears and scabs on the skin may be observed.

The symptoms of swine plague in many cases are identical with those of hog cholera. The course of the disease varies from a few hours to a day or to three weeks. I have in mind a herd of hogs that I visited in the United States, containing 90 head, 89 of which were sick with hog cholera at the time of my first visit. I found them in an open lot where the sun was beating down very hot. There was plenty of good shade but they seemed to prefer the sun. I found them lying in groups, many crawling upon the top of others until a tier of four or five deep was to be seen. It was almost impossible to make them move out of their places. In about five days' time 80 per cent of them had died, and, the last information I received concerning them, more than 90 per cent had died and they were still dying.

DIAGNOSIS.

If several animals are affected with the symptoms already enumerated, and if a similar disease has been affecting hogs in the immediate vicinity, we may decide that one or both of the diseases in question are present, since no other epizoötic disease among hogs has been recognized in these Islands.

POST-MORTEM LESIONS.

The autopsy shows lesions of septicemia which are at times quite puzzling. In the acute form of hog cholera the animals die suddenly, showing on an examination a hemorrhagic condition of the heart muscles, of the bronchial and thoracic lymph glands, and infarcts in the kidneys. Hemorrhages beneath the thoracic and abdominal serous membranes are of frequent occurrence, also of the subcutaneous tissue. The spleen is enlarged to four or five times its normal size. This is indicated by the reddish or bluish blotches on the ventral aspect of the body. The mucous membrane of the stomach is usually deeply reddened. No ulcers will be found in the intestines in these acute cases. The chronic form is more common and in this disease is almost manifested in the large intestines. The disease in the intestines consists of ulcers or buttons. These may be circular and projecting, or depressed and ragged in outline. They appear most frequently in the cecum, upper half of the colon, and around the ilio-cecal valve. The stomach is sometimes ulcerated. The spleen, unlike that in the acute form, is not always enlarged.

In swine plague the primary seat of the disease is to be looked for in the lungs. Here there is inflammation and small and large necrotic areas. The serous membranes also partake of the inflammatory process and by the formation of fibrinous material become adherent.

The lymph glands are always involved and of a very dark color. The central portion of the bones of the spinal column are of a very dark color, which is very apparent when the carcass is split in halves.

TREATMENT.

There has never been discovered a remedy which will cure all causes of any one disease in man or animals. Some outbreaks of these diseases are so violent and rapid that the animals are dead before they are known to be sick. The following is recommended by Dr. Salmon:

	Pounds.
Wood charcoal	1
Sulphur	1
Sodium chloride	2
Sodium bicarbonate	2
Sodium hyposulphite	2
Sodium sulphate	1
Antimony sulphate (black antimony)	1

These ingredients should be completely pulverized and thoroughly mixed. The dose of this mixture is a large tablespoonful for each 200 pounds weight of hogs to be treated, and it should be given only once a day.

He also says: "Hogs are fond of this mixture. It increases their appetite and when they once taste of food with which it has been mixed they will eat it though nothing else would tempt them. Animals that are very sick and that will not come to the feed should be drenched with the medicine shaken up with water." Great care should be exercised in drenching hogs or they will become suffocated. Do not turn the hogs on their backs to drench them but pull the cheek away from the teeth so as to form a pouch into which the medicine may be slowly poured. It will flow from the cheek into the mouth; when the hogs finds out what it is they will stop squealing and swallow. A very easy method is to cut off the toe of an old shoe, insert the cut end into the hog's mouth, and pour the medicine into the shoe. In many experiments hogs which were so sick that they would not eat commenced to eat very soon after getting a dose of the remedy and steadily improved until they appeared perfectly well. This particularly is the case when the disease is hog cholera.

This medicine may be also used as a preventive of these diseases, and for this purpose should be put in the feed of the whole herd. Care should of course be observed to see that each animal receives its proper share.

With these, as well as all other diseases, precaution is much more important than treatment. If cholera is known to be in the neighborhood, the hogs should be confined in a small lot in which there is no stagnant water and where they will be protected from the hot sun. They should be fed plenty of good, nutritious food which is soft and in which should be mixed daily a dose of the above-described mixture. No one who has recently visited a place where the disease exists should be allowed under any consideration to go in or about lots containing healthy hogs. Care should be taken that the hogs have no access to any grounds which receives drainage from the infected locality. Any animals which are purchased should be placed in quarantine for not less than four weeks before being allowed to run with the herd.

Should the disease make its appearance in a drove, all the animals which appear to be still unaffected should at once be segregated by being placed in pens as far away as possible, thus removing the chances of their becoming infected. Should the disease appear among those which have been moved, the sound animals should again be moved to still another place. This should be repeated as often as the disease makes its appearance. It is of little use to move the sick from the well, as the lot in which they have been kept is thoroughly infected. Different feeders should care for the sick and the well for fear of carrying the contagion, as a small particle of dirt no larger than a pin's head may easily adhere to the shoe and be carried from the pen in which the sick animals are kept and so spread the disease.

The carcasses of any animals which die from these diseases should be burned, if it is possible to do so, as burying is not safe, since the germs will retain their vitality for months in a warm, damp soil such as we have in these Islands. If the carcass is buried the germs may be brought to the surface by worms or dogs, thus producing the right kind of conditions for another outbreak. The lots where the sick animals have been kept should be thoroughly cleaned and disinfected with lime and carbolic acid and should not be used again for six weeks or more. These diseases are so fatal and difficult to treat that too much care can not be exercised to prevent their introduction or spread.

SPECIAL REPORT ON TEXAS FEVER (TICK FEVER, SPANISH FEVER).

By MURRAY J. MYERS, D. V. M.

HISTORY.

In 1796 we find the first known accounts of a disease being disseminated by apparently healthy cattle from certain districts in the Southern States, United States of America, when these cattle were driven north.

Dr. Mease gave an account of an outbreak of this disease which occurred in 1796 in Pennsylvania, United States, as a result of Southern cattle being brought and sold there. These cattle were penned over night in a separate field and did not come in contact with the cattle on the farm. Nevertheless, the latter commenced dying a short time afterward. In every instance where sold they communicated the disease to the cattle with which they mixed.

Many similar outbreaks occurred in the United States in the first half of the nineteenth century, but the accounts of them are too meager to be of use.

Very little more was heard of this disease until about 1850, when cattle bred in the southern portion of the United States began to be driven north for distribution to feeders in the Northern States. A mysterious and highly fatal disease then appeared along the main roads or trails over which these cattle were driven, destroying about 50 per cent of all the native cattle. Persons living near fording places lost as high as 90 per cent. It was several years before the origin of this disease was traced to the southern cattle. In 1868 large herds of southern cattle were sold for feeding throughout the noninfected area. As the hot weather of summer came on the disease broke out wherever the southern cattle had been taken. Of 320 head of native stock shipped from one farm for slaughter 224 head died before they reached their destination and the remainder were said to have been sent to the rendering tanks. At a little town in the northern portion of the United States about 18,000 southern cattle were landed. The disease commenced its destructive work early in the summer, sweeping away nearly every animal of the bovine race in that section. These losses are simply examples of what was occurring in many parts of the Northern States. The disease was finally traced to the southern cattle, and in the absence of specific knowledge concerning its character there was great alarm as to the extent to which it might spread and its effects upon the public health. While the direct loss from the disease was very heavy and brought disaster to many individuals, the contagion was fortunately one which did not spread from the sick native cattle, and was consequently self-limited. It was also a disease that was not communicable to man and hence did not appreciably affect the public health.

The tick *Boophilus annulatus* which transmits Texas fever is supposed to have been introduced into the Western Hemisphere by the early importations of cattle from Spain and other southern European States. No doubt the tick *Boophilus australis*, the species common to the Philippine Islands, was brought here by the first importations of cattle from foreign ports.

It is reported that about a year or so ago a herd of Australian cattle was imported to these Islands for dairy purposes and after a time was completely wiped out by Texas fever. Only a few months ago a small number of cattle was imported from the United States, a portion of which also died from this disease.

Texas fever in these Islands is of importance only to persons who desire to import cattle for various purposes. All cattle that are imported into these Islands should come from a section of country where the tick *Boophilus annulatus* or *Boophilus australis* is present, and it should be positively known that they have been infected with one of the above-mentioned species of ticks. If cattle are imported from a section of country where the above-mentioned species of ticks does not exist, then it is necessary for them to be immunized by artificial means before they are allowed to come in contact with the native cattle or turned out on any pasture in these Islands. All of the cattle in these Islands are infested with the tick, and for this reason they possess a natural immunity against Texas fever.

I have found but two species of ticks in these Islands—the *Boophilus australis* and the *Dermacucter electus*. Eight different species of ticks have been found on cattle in the United States.

CAUSES.

It is generally accepted now that Texas fever is transmitted from one animal to another through the medium of the cattle tick *Boophilus australis*. The mature female tick, as seen on the animal's skin, has an oblong, oval-shaped body resembling the seed of a castor-oil plant, and is of a dull leaden color, due to the blood-red contents of the body showing through the distended semitransparent cuticle. It rarely exceeds one-half inch in length and about five-sixteenths of an inch in breadth and possesses four pairs of legs situated on the anterior lateral portion of the body. It attaches itself to its host by means of peculiarly constructed mouth organs collectively known as the rostrum, in the center of which is a barbed dart furnished on either side with several rows of teeth, set obliquely, which enable the creature to adhere to the skin more firmly. The male tick is usually found attached to the skin of its host immediately underneath the anterior part of the female. Its body is of a dark-brown color and somewhat triangular in shape, and when full grown is only about one-fifth part of the size of a full-grown female, and never being in an engorged condition.

As the female tick engorges herself with blood she becomes fecundated by the male, and, having arrived at maturity, releases her hold and falls to the ground. On recovering herself she crawls away to some secluded spot and there lays an enormous number of eggs which agglomerate in a dense mass. As the process of egg laying proceeds she gradually gets smaller or shrivels up and ultimately dies. A fully matured female tick is capable of laying from 3,000 to 4,000 eggs. Ticks that are about one-half grown are capable of laying eggs. The period of incubation in a tropical climate is about twenty days after the egg is laid, but if the temperature is lower the incubation period is correspondingly longer. The young ticks that have just been hatched are very tenacious of life. I have kept them in a well-stoppered bottle for four months, and no further development takes place until they gain access and adhere to some susceptible animal, when, by taking sufficient nourishment for their requirements, they undergo another change or molt, and finally each one appears with its extra pair of legs as a perfectly formed male or female which, by gradual and continual sucking the blood from the body of its host, ultimately arrives at maturity.

We are now in a position to understand and explain the principal features of this disease. It is plain that cattle in infected districts carry in their blood the contagion of Texas fever. This contagion is a protozoan organism called the *Pyrosoma bigeminum,* analogous to the parasite of human malaria. This parasite is transferred to susceptible cattle outside of an infected district by the tick *Boophilus australis.* Cattle from an infected district, although carrying the contagion, are harmless unless infested with this particular tick. Cattle from an infected district carry this contagon in their blood for years after leaving the infected district and would again be dangerous to other cattle if by any chance they were infested with the proper species of ticks.

The tick is regarded as the host of the parasitic protozoön and in fastening itself to the skin of the animals, it inoculates it with the parasite. The pear-shaped parasite is found inside of the red blood cells singly or in pairs. It is also probably true that there are varying degrees of virulence or disease-producing powers in different lots of ticks of this species, and this may account in part for different degrees of severity in different outbreaks of the disease, but then there is very little known on this subject. While a few ticks sometimes produce a fatal case of the disease, as a general rule the greater the number of ticks the more severe the disease.

SYMPTOMS.

The symptoms vary according to the severity of the attack. Often an animal is found dead before it is known to be sick, while again the animal may be sick for some time.

In the acute form the animal has a very high fever and, as the disease progresses, the heart's action becomes more rapid until we find the number of pulsations increase to 100 or 120 per minute, nearly double that of the healthy animal. The respirations range from 70 to 120 per minute, and the animal becomes somewhat unconscious and has a staggering gait. The nose and lips become of a very pale color, hot and dry. The animal refuses to eat; rumination or chewing the cud ceases entirely. In the earlier stages the dung, owing to constipation, appears as small, round balls, often coated with blood-stained mucus. Constipation is followed by diarrhea in the later stages. A very important and almost characteristic symptom from which the disease takes the name "red water" is the color of the urine, which varies from a deep yellow to a dark red, almost black, according to the stage of the disease.

The presence of the tick is a very important symptom, for without it this disease is not possible except by direct inoculation of the blood.

POST-MORTEM LESIONS.

On opening up the abdomen and exposing the internal organs the first striking feature is the enormous enlargement of the spleen, which may weigh as much as 7 or 8 pounds, while a healthy spleen weighs only 2 or 3 pounds. On cutting through the substance of the spleen each surface presents a dark-red, almost black, tarry appearance, while the structure is so disintegrated and friable that if the spleen in most cases is held up by one end, the pulp will gravitate quite freely toward the other end. In many cases the fat and connective tissue is of a deep, lemon-yellow color which is indicative of jaundice. The liver is always more or less affected, being considerably enlarged, and the color varies from normal to a light yellowish-brown color, extremely friable. The bile ducts and gall bladder are very much distended with dark greenish contents, often very thick in consistency and somewhat glandular. The kidneys are slightly enlarged, very light in color, and may show hemorrhages on the outer surface.

In very advanced cases of the acute type the connective tissue which covers the kidneys is found to be in an edematous condition.

The heart shows small hemorrhages on the inner and outer walls. The lungs, as a rule, are apparently normal.

The first and second stomachs are usually found to be in a normal condition, but the third stomach is naturally very much impacted, which is very misleading to those unfamiliar with such matters. The fourth or true stomach has a very decided congested appearance, the mucous membrane being covered with patches of petechiæ. In some instances these petechiæ undergo a kind of granulation.

The small and large intestines are usually in a more or less congested state, with small hemorrhagic patches on the mucous membrane. In acute cases there may be a sloughing of parts of the mucous membrane from the colon and rectum which come away with the dung.

The bladder usually contains urine varying in color from a bright orange to a deep port wine, or almost black, and in addition small quantities of mucus and broken-down blood cells.

In the early stages of the disease the muscular tissue is firm and has quite a normal appearance, but in the advanced stages of the acute type we have a totally different condition. The muscles are soft and clammy and of a light pink color, due to the anemic condition of the animal. In chronic cases there is little to be noted except the extreme emaciation and bloodless, pale condition of the entire body.

DIAGNOSIS.

In this disease a diagnosis can easily be made by proving the presence of the parasite in the blood.

COURSE AND TERMINATION.

The usual course of the disease is a rapid one, with early death or cessation of the aggravated symptoms from five to ten days and subsequent recovery. But these sometimes develop a secondary or chronic form of the disease that may end fatally after several months if the animal fails to get good food and care.

Many of these cases of the chronic form are very puzzling, as they show no special evidences of disease but gradually become poorer and poorer although eating until diarrhea sets in. Swelling appears along the under parts of the body and death results from inanition.

TREATMENT.

Medical treatment of Texas fever is not satisfactory. A great many remedies have been tried, but without any good results. The most satisfactory treatment is good care and surroundings and nourishment to sustain the animal until the fever subsides. The following plan of treatment has given the best results: As soon as an outbreak of Texas fever occurs remove all susceptible animals to fresh, uninfected ground. Remove all cattle ticks from susceptible animals by greasing with lard or similar oil and scraping the ticks off with a dull knife blade. Green feed should be given. This furnishes a palatable and nutritious food and has a laxative effect upon the bowels. Sick cattle should be moved to comfortable, shady quarters and given access to fresh water. In cases where it is practicable, drenching with sweet milk has given good results.

PREVENTION.

Cattle can be immunized artificially against Texas fever by direct inoculation of blood from an immune animal into the blood of one that is susceptible, or by infesting susceptible cattle with the tick *Boophilus australis*.

The most suitable subjects for inoculation are young cattle from 6 to 12 months of age and in good condition as to flesh.

The initial dose of blood should be small, not to exceed 1 or 2 cubic centimeters of fresh defibrinated blood. Since the initial dose of 1 cubic centimeter of fresh blood is capable of producing a high fever and marked destruction of the blood corpuscles, it must be unsafe to give a much larger quantity.

In from seven to ten days the inoculated animal will develop a case of Texas fever which is usually of a mild type. If the attack is a severe one it should be treated as directed for Texas fever. In some cases the attack is so mild that it will require close watching and the use of the thermometer to detect any disturbance whatever. After recovery from the attack produced after the first inoculation, a second inoculation may be made if desired.

Like results may be obtained by infesting a suspectible animal with a few ticks, thus producing a mild attack of the disease. After the animal has recovered from the attack produced by the first infestation of ticks, it should again be infested with them, but the second time more ticks should be used. Good results have been obtained by a tick infestation following the inoculation of blood.

CLINICAL NOTES ON SURRA.

By THOMAS M. OWEN, D. V. M., *Veterinarian, Board of Health.*

Surra may be defined as a specific and infectious febrile disease, which may affect all species of animals. It is due to the presence of a flagellate protozoön (*Trypanosoma evansi*) in the blood. It is characterized by an intermittent, remittent, and relapsing fever. The symptoms not only vary but differ, according to the species of animals attacked. The symptoms usually described by writers are those pertaining particularly to the horse. Owing to several recent and extensive epidemics of surra among carabaos, it is most important that the subject should be given special attention, as the disease manifests considerable variations in different species of animals, as the mortality varies also.

SYMPTOMS NOTED IN THE HORSE.

Provided we are in a surra zone and where temperatures are recorded daily, as with the Army, a marked fever is invariably the first symptom noted. The skin feels hot and there may be a temporary loss of appetite together with a thirst which is more or less abnormal. The most constant and invariable symptom in the progress of the disease is the wasting away of the flesh, notwithstanding the ravenous appetite. This wasting away goes on more rapidly in some cases than in others. The animal becomes inactive and sluggish and allows the head to drop carelessly; finally edema of the genitals and dependent parts appears, particularly of the hind legs, belly, and scrotum (of the males). The gait becomes staggering and finally the animal falls.

In these cases there are slight catarrhal symptoms, weeping of the eyes, and often there is a watery discharge from the nose, sometimes followed by a gelatinous or purulent discharge from the eyes and nose. The mucous membrane becomes yellow and pale. The respiratory movements are usually quickened from the start, sometimes out of all proportion to the pulse, and frequently appear to be entirely abdominal. In most instances profuse sweating occurs before death.

The duration of the disease varies as to age, general condition, and care. Weak animals succumb more quickly than strong ones. In some cases the course is very rapid—it may be shorter than ten days or two weeks. However, animals given proper attention usually live from four to eight weeks.

MORTALITY.

The mortality among horses and mules is 100 per cent.

SYMPTOMS NOTED IN THE CARABAO.

With this animal the progress of the disease is variable and greatly depends upon the condition of the animal when attacked. Carabaos, like cattle, possess more natural immunity than other domesticated animals and may be infected with surra (*Trypanosoma evansi*) for months and ultimately recover.

In the early stages of this disease we have no defined symptoms by which we may detect an infected animal except by a microscopical examination. Without such examination we do not detect the disease until the later stages begin to show upon the weak animals, from two to three months after infection, when a dull, sunken condition of the eyes and a weeping of tears are noticed.

In strong animals it may be ten months before the disease is detected where a blood examination is not made. The mucous membrane, which can be easily seen beneath the eyelid (due to the sunken eye), is of a pale-yellow color. The action is sluggish, with a dragging of the hind legs on the ground. During this time the wasting has been steadily progressive, especially at the muscles of the back and those surrounding the hip joint (glutei muscles). However, edema, which is so commonly seen in the horse, is rarely perceptible in the carabao.

In long-continued cases the muscles of the back are found to have undergone considerable atrophy, causing the back to be well roached. In these cases the muzzle (or the lower portion of the face) or the legs, or both, present a spotted appearance, from the loss of pigment, due probably to a sluggish or defective circulation.

The duration of the disease is very variable and usually chronic, owing to the power of resistance of the animal. Carabaos may die suddenly, but usually are taken with recurrent fever, from which they may apparently recover, only to succumb during some later recrudescence of the disease. The animal may be taken with a high fever, or the temperature may be below normal.

Great emaciation takes place and the carabao is unable to stand and may lie for days without being able to rise, when suddenly the animal partially regains his strength and apparently recovers. After a varying period of days he may be taken as before, when he dies apparently from exhaustion.

The parasite is usually found by a microscopical examination during these attacks.

MORTALITY.

The mortality among carabaos and cattle varies according to the condition of the animal infected and to the care it receives. Without good care a large number of weak animals die if infected. The mortality is slight among carabaos which receive the best of attention.

MODES OF TRANSMISSION OF SURRA.

There can be no doubt as to the certainty of the fly theory. It is a well-established fact that horseflies act as direct transmitters of the surra organisms, causing direct subcutaneous inoculations from one animal to another. During a recent epidemic of surra it was found that a large per cent of the body fluids of horseflies which were caught throughout the infected zone contained the surra parasite.

Open wounds are also a constant source of danger during the prevalence of the disease, not only on account of flies but of infected currycombs, brushes, and sponges coming in contact with the wounds.

TREATMENT.

As the mortality of most animals is 100 per cent, except in carabaos and cattle, nothing can be said of the former. Carabaos and cattle require the best of care and attention and should be given the best of nutritious food, together with plenty of pure water.

No satisfactory serum treatment has as yet been discovered. There are no specifics—in fact, drugs thus far used in the disease seem to be of little value.

PREVENTION.

When surra is found among horses or mules all infected ones should be immediately destroyed and buried at a proper depth, so as not to spread the infection. The healthy animals should be removed as quickly as possible and transferred to dark, spacious, well ventilated, fly-proof stalls. (Experience proves that in dark places few, if any, flies are found.)

Temperatures of the remaining animals should be recorded daily and, should abnormal temperatures be found, the animal should be looked upon with suspicion and be removed to some other quarters to await further developments. In all cases where an elevation of temperature is recorded a microscopical examination of the blood should be made until the organism is found, when the animal should be disposed of. Animals should not be staked or run out during the prevalence of the disease, but should be kept in their stables as much as possible. Solutions of creolin and carbolic acid, or any disinfectant which may drive away flies, should be used freely and often about the premises.

REPORT OF MEDICAL SUPERINTENDENT OF THE CHINESE HOSPITAL FOR CONTAGIOUS DISEASES.

Dr. Tee Han Kee reported on the Chinese hospital for infectious diseases for the year ended August 31, 1904, as follows:

"PLAGUE HOSPITAL.

"From July 1, 1903, to date 19 cases of bubonic plague have been admitted; of these 14 died and 5 cases recovered, a mortality of 73⅝ per cent. The mortality is by no means low, but in comparison with that of my report of last year it is very much lower, and the number of persons affected with this disease has also greatly decreased. In my report of last year there were 48 cases, with 44 deaths, a mortality of 91⅔ per cent. I have attributed the lowering of the mortality and the decrease of the persons affected to the effective measures taken by the Board of Health in inoculating the Chinese with plague prophylactic serum, and if such work be carried out regularly every year I am of the opinion that in two years' time plague will be completely stamped out.

"The plague patients were as usual treated by the Chinese practicante in charge of the hospital, but during the last twelve months I personally had more opportunity to experiment as to the effect of the antipestic serum. Of the 19 cases 11 were treated with this serum, and the result was that 5 recovered, showing a fairly good percentage of recoveries from the use of the antipestic serum. The majority of these plague cases were received too late for any successful treatment, 6 cases having succumbed to the disease in from ten minutes to four hours after admission into the hospital.

"CHOLERA HOSPITAL.

"Only 7 cases of cholera have been admitted into this hospital during the last twelve months, with the result of 6 deaths and 1 recovery, a mortality of $85\frac{5}{7}$ per cent. The cases admitted for treatment were so few that no satisfactory conclusion could be drawn as to the efficacy of the treatment used in this hospital.

"SMALLPOX HOSPITAL.

"Not a single case of smallpox has been admitted. This disease is really very rare among the Chinese residents of this city, owing undoubtedly to the fact that every Chinaman had to be vaccinated by a doctor of the Marine-Hospital Service of the United States at the port of his departure for Manila, and also to the compulsory measures used by our Board of Health to vaccinate every body once a year.

"HOSPITAL STAFF AND MAINTENANCE OF THE HOSPITAL.

"The hospital staff, as usual, consists of 1 nonqualified Chinese practicante (appointed by the Chinese Chamber of Commerce), 1 chief ward master, 4 hospital attendants, and 1 cook. The hospital is maintained by the Chinese Chamber of Commerce, and during the twenty months from October, 1902, to December 31, 1903, this community has subscribed and expended $39,767.88, Mexican currency, for the building of the new plague hospital and for the maintenance of the infectious disease hospitals."

SPECIAL REPORT OF RESIDENT PHYSICIAN, BILIBID PRISON.

By Dr. WILLIAM R. MOULDEN, *Resident Physician.*

Dr. William R. Moulden, resident physician of Bilibid Prison, submits the following report under date 14th of July, 1904, to the Warden:

"During the year 12,167 prisoners reported at morning sick call. Of this number 11,244 were prescribed for and returned to work, while 923 were admitted to the hospital. Of the total number treated in the hospital 265 died and 658 recovered.

"There were 11,716 visits made to the hospital for the treatment of diseases of the eye, ear, nose, throat, and skin, genito-urinary system, and diseases of minor surgical importance. These prisoners were returned immediately to work, losing on an average one hour a day until cured. The average number of days that each prisoner reported for treatment was seven. The average length of illness in hospital, excluding tuberculosis, was thirteen days.

"Smallpox occurred in its most virulent form in March, 1904, four out of six ill with the disease dying from the infection.

"As the entire prison population is vaccinated every four months and all new arrivals vaccinated in quarantine, the solution of the cause of the smallpox epidemic lies in the fact that as the disease has a very long incubation period, and the quarantine, owing to the crowded condition of the prison and to the lack of proper quarantine facilities, being of one day only, is insufficient to render the vaccinated prisoners immune or to admit of the development of the disease if already present previous to admittance to the prison.

"The question of quarantine in an institution of the magnitude of this prison is a serious one, and, while the writer is fully alive to the difficulties of providing accommodations for the large number of men that enter the prison every day, he most earnestly recommends that some action be taken, as soon as practicable, toward establishing a quarantine building with at least five compartments, allowing for the proper isolation of each day's admissions. In this way a complete and exhaustive examination of each may be made, not only for cholera, plague, and smallpox but for the far more important, because less dreaded and therefore less noticed, diseases of tuberculosis and leprosy.

"By far the most important disease that has occurred among the prisoners is lobar pheumonia, a disease not commonly recognized as occurring in tropical countries, but which, partly owing to artificially produced conditions, has attained a virulency and strength that makes it stand at the head of the list of death producers.

"The cause or causes responsible for the presence of this disease here in the prison deserves careful and thorough investigation and consideration, for it is to prophylaxis that we must look for help, as there is as yet no antitoxin to invoke to counteract the ravages of the disease.

"A most complete and conservative investigation of this subject has forced the writer to the conclusion that the presence of lobar pneumonia among the prisoners is due mainly to the overcrowding that exists throughout the entire prison—overcrowding such as it is difficult to comprehend except by actual observation and experience; to the extent that men are forced to sleep as close together as it is possible for them to lie side by side, breathing and rebreathing the poisonous exhalations from lungs and skin until to one unaccustomed it is inconceivably sickening, repulsive, and unendurable.

"The inevitable result of exposure, night after night, to this condition is a lowering of the strength, vitality, and resisting powers of the individual that renders him peculiarly susceptible to diseases of the lungs—a ready prey to the germs of pneumonia and tuberculosis.

"Estimation of the cubic air space of the ward buildings reveals the fact that buildings that should contain not over 200 men are at present sheltering 500 and over.

"A careful and exhaustive study of the subject of the ventilation of sleeping quarters, based upon the peculiar needs and conditions existing in a prison in the Tropics, has convinced the writer that each individual should have at least 3 feet of bed space and 300 cubic feet of air space allotted him. This is considered the lowest possible estimate consistent with health and efficiency.

"It is therefore recommended that some action be taken as soon as practicable toward providing for the enlargement of the sleeping quarters to the needed dimensions.

"Another very well-marked predisposing cause to disease of the lungs is the exposure in thin garments to the wet and comparatively cold air of the rainy season. As most of the men are unavoidably drenched in the rain during the working day it seems wise and expedient to provide a heavier garment than that worn during the dry season.

"During the last month another disease that owes its origin mainly to overcrowding—namely, beri-beri—has broken out among the prisoners. Although as yet there have been but six cases, the indications point to a larger number in the near future, provided something is not soon done to improve the conditions.

"While every effort possible has been made by the management of the prison to second the writer's endeavor to provide a modern hospital, with the necessary appurtenances for the large number of sick in the prison, the resident physician feels it his duty to invite attention to the inadequate equipment at his disposal for the approved modern treatment of disease, general and surgical, and to request that the matter of providing a complete, modern hospital, with attached quarantine wards, and the employment of four additional American hospital attendants to take place of the uncertain and doubtfully efficient prison help, be taken up at as early a date as possible.

The resident physician wishes to express his thanks to the management of the Government Laboratory for the establishment in the prison hospital of a branch laboratory for diagnostic purposes. This has made possible an accuracy and precision hitherto impossible in the scientific treatment and prevention of disease.

"During the three months of its establishment here the writer has made 386 sputum examinations for the diagnosis of tuberculosis of the lungs, 33 blood examinations for malaria, 76 urinal analyses, and 27 examinations of feces for amebic dysentery."

REPORT OF THE CEBU LEPER HOSPITAL.

By Father FILOMENO FLORES, *Superintendent.*

Father Filomeno Flores, superintendent of the leper hospital in the city of Cebu, reports as follows on the 15th of July, 1904:

"At the beginning of July, 1903, there were on hand at the leper hospital of Cebu, 209 patients.

"During the fiscal year from July, 1903, to June, 1904, several lepers suffered with other diseases at the leper hospital, some of whom recovered and others died.

"The most frequent diseases were fevers, malarial fever, and diarrhea, and I have treated them all with quinine and phenacetine, and the last one with 'manzanilla' and some drops of chlorodine or with salicylate of bismuth.

"I also wish to inform you that since the time the patients were supplied with a sufficient quantity of iodoform and cotton they have suffered less from their wounds, and several of these have healed.

"I shall also state that the bishop of Cebu and other charitable persons have given frequently alms for the lepers, and that I spent these amounts in preparing extraordinary meals for them and in buying them some clothing. They have had at least a few extra dishes each month.

"I am always with them in the mornings and in the afternoons, examining their rations and making inspections or administering medicines to those who keep their beds.

"My object in doing this is because I do not only think it my duty but also because I want to make their condition more bearable, if possible; and for this reason and notwithstanding that my acts are still very far from what is demanded by true charity and that the lepers regard me as their own father, I preach to them, celebrate mass, administer them the Holy Sacraments, and finally teach them the duties of a Christian.

"During the year 1899 I built two camarins by order of Mr. Maclernan, with kitchens and closets.

"I will finally state that I have been already serving the lepers for fourteen years."

REPORT OF THE PALESTINA LEPER HOSPITAL.

	Male.				Female.				Grand total.
	Single.	Married.	Widowed.	Total.	Single.	Married.	Widowed.	Total.	
Lepers in hospital July 1, 1903	15	2	1	18	6	2	1	9	27
Admitted	2			2	2			2	4
Total	17	2	1	20	8	2	1	11	31
Died	4			4	3			3	7
Escaped					1			1	1
Remaining in hospital June 30, 1904	13	2	1	16	4	2	1	7	23

One male and 1 female patient were admitted in September, 1 female in October, and 1 male in May; 1 male and 2 females died in July, 1 male in August, 1 male in October, 1 male in January, and 1 female in March; 1 female escaped in July. All patients are adults with the exception of a little girl.

REPORT OF SPECIAL SANITARY INSPECTION OF THE PROVINCE OF ALBAY.

By Dr. H. B. WILKINSON, *Special Inspector.*

Dr. H. B. Wilkinson reported on the 24th of September, 1903, in regard to Albay Province, as follows:

"I found 339 prisoners confined in the two jails. The main jail, located in the back part of the building occupied as offices by the provincial officials, is in good state of repair, clean, dry, and apparently well kept, but the windows are too small, admitting very little sunlight, and it is too much crowded. This jail has five cells and two sick halls, containing in all 244 prisoners. Three of the cells which have a floor space of only 20 by 30 feet, contain, respectively, 47, 49, and 52 natives. There were 32 sick in this building—15 cases of beri-beri and 17 with various other diseases.

"The smaller jail was of light material, with dirt floor, but provided with elevated beds and free ventilation.

"The food seemed fairly well prepared, but consisted too largely of rice and fish. The amount of fresh meat furnished was small, with little or no fresh vegetables, beans, etc.

"On September 10 I accompanied Colonel Bandholtz and the governor to Tabaco, Albay Province, where I found the health good and no epidemic diseases, returning to Legaspi on the 11th.

"On September 12 and 13 I went up into the interior of Albay Province as far as Guinobatan and Ligao. There is no cholera in this section, but some smallpox, generally scattered. The doctors here report vaccine virus is usually inactive when it reaches them. This was more especially complained of by an Army surgeon who got his virus through the United States Army medical supply depot."

REPORT OF SPECIAL SANITARY INSPECTION OF THE PROVINCE OF BATAAN.

By Dr. LUIS ABELLA, *Medical Inspector.*

Dr. Luis Abella, medical inspector, Board of Health for the Philippine Islands, under date the 25th of January, 1904, submits the following report on the Province of Bataan:

"PROVINCIAL BOARD OF HEALTH.

"I have inspected the provincial board of health, which is composed of an acting president (who is president of the municipal board of health), the supervisor, and the provincial secretary.

"The province has no president of the provincial board of health at present, the former president having been transferred to the Province of Zambales.

"The provincial board of health has done sanitary work in the whole province, issuing ordinances concerning the cleaning of houses, yards, streets, squares, and markets; inspection of cattle for public sale, and causing to be punished all infractors. It also took vigorous steps to destroy rinderpest among carabaos.

"In September, 1903, cholera made its appearance in the province and the proper steps were taken to combat it. Records are kept in various kinds of books, such as the ordinance book and letters-sent and letters-received books, and are clearly and faithfully kept. Reports are sent monthly.

"MUNICIPALITIES.

"*Balanga.*—The municipal board of health of this place consists of a municipal president (who has a registered title as 'cirujano ministrante'), a citizen, and a school-teacher as members. The municipal secretary acts as secretary of the municipal board of health.

"The municipal board of health has been engaged in compiling sanitary municipal ordinances, inspecting houses, yards, streets, squares, and markets. These inspections are made by the president of the municipal board of health himself, assisted by the municipal police. He has caused all infractors of ordinances to be fined and punished.

"The records are kept in such books as death, birth, letters-received, letters-sent, and vaccination books. Reports are sent monthly to the provincial board of health. The president of the municipal board of health, Mr. Pantaleon Baza, is an intelligent and capable person; he is an old resident in the province and has a good reputation among the people. He is at present acting as president of the provincial board of health. He attends the poor of the town, the Constabulary, and the prisoners gratuitously.

"I found the town of Balanga neat and in a good sanitary condition, fecal matter being deposited in the ground at a depth of one meter and then covered up with earth, lime, or ashes. This system of fecal disposal is not adopted by all houses, as I saw much fecal matter deposited on the ground near several houses. Ordinances are in existence for the sanitary maintenance of pigs, but I noticed many of them running loose, and in a very miserable condition. There is a cemetery outside the town which is surrounded by a wall and is in a good sanitary conditon.

"*Pilar.*—This town is consolidated with that of Balanga and is somewhat neglected in matters of sanitation, the members of the municipal council failing to make the people comply with existing ordinances. I noticed many yards and streets in a dirty condition, and many pigs were seen running loose on the streets. Diseases common among the inhabitants in the locality are tuberculosis, malaria, and infantile convulsions. I also saw three good houses capable of holding fifty beds in event of their being used as hospitals.

"*Abucay.*—This town has no organized municipal board of health on account of its limited resources or means. The municipal board is engaged in compelling the people to comply with ordinances issued by the provincial board of health, together with their own ordinances, which can be seen in the book of acts. Records are kept in two books—one for births and one for deaths, the latter being kept by the municipal secretary in a very confused manner. Reports are sent to the provincial board of health monthly.

"Notwitshtanding the absence of a municipal board of health, the rules of hygiene have been observed among the people. Houses, yards, streets, and markets are neat, but nearly all latrines are kept in bad condition. Many pigs are seen on the streets. The sanitary condition is fair, and the death rate comparatively low.

"The barrio of Mabatan, which has been consolidated with Abucay, consists of a number of small houses, whose inhabitants care very little for sanitation, there being no one to enforce sanitary regulations.

"Diseases common in this town are tuberculosis, dysentery, and infantile convulsions.

"*Orion.*—This town has an organized municipal board of health which consists of a president, a citizen, and the school-teacher as members, the secretary of the municipality acting as secretary of the municipal board of health. The work done by this board is as follows: Enforcing all municipal ordinances; inspecting houses, yards, streets, squares, markets, and the inspection of cattle for public sale; supervising the cleaning of rivers and wells, and causing to be punished and fined all infractors of said ordinances. These inspections are performed by the president himself, assisted by the police. Records of the town are kept in two books, one being for registration of births and the other for deaths. The registration of deaths is very poorly kept.

"The president of the municipal board of health, Señor Simplicio Doloroso, is a practicante and a native of this town. I heard no complaints against him, although his medical knowledge is poor, which consequently makes his diagnosis doubtful. He is acquainted with the rules of hygiene and sanitation, having caused to be punished and fined all infractors of municipal ordinances.

"I found this town in a satisfactory condition as regards sanitation, latrines being at a depth of one meter in the ground and filled by degrees, covered with earth, lime, or ashes. Some houses do not use latrines at all. The cemetery is outside the town and is surrounded by a wall.

"Diseases which are common among the inhabitants are tuberculosis, malaria, and infantile convulsions. Many cases of smallpox were registered last year. Many children were vaccinated, but nearly all who were vaccinated were negative, which was probably due to the vaccine virus being old. There are a few cases registered in a barrio near this town.

"A house is available for a hospital, which would be capable of holding from forty to fifty beds. There are three insane in the town.

"*Orani.*—The municipal board of health of this town is composed of a citizen and the school-teacher as members, and the municipal secretary, who acts as secretary to the municipal board of health. As there is no person capable of filling the position of president of the municipal board, the place is temporarily held by the municipal president.

"The board has been engaged in enforcing ordinances for the sanitary maintenance houses, streets, yards, markets, squares, and other public places; the inspection of cattle for public use, and the sanitary maintenance of rivers. Inspections are made by the municipal president and his secretary, assisted by the police. The board has caused all infractors of ordinances to be fined and punished.

"During the cholera epidemic the board took vigorous steps in enforcing regulations issued by the provincial board of health. A disinfecting gang was organized and all houses infected with cholera were disinfected; all contacts were quarantined. Two hospitals were established, one being used for poor people and the other for the better class.

"The municipal board provided a special cemetery for the purpose of burying those dying of cholera. All cholera patients were given appropriate medical assistance, and special attention was directed toward the food and drink supplied to each patient.

"Reports are kept by the secretary of the municipal board. He seems to be an intelligent man, but not fitted for the position he is filling. Circulars and ordinances are kept on file, and other records are kept in such books as an act, birth, and death book. Monthly reports are sent to the provincial board of health. The town is neat and in a very good sanitary condition.

"The town of Samal has been consolidated with Orani and depends entirely upon the latter. In my opinion Samal is one of the most insanitary towns in Bataan Province. Its location is such that it is subjected to overflow by the tide, which, when it recedes, leaves all kinds of dirt and other deleterious matter.

"The inhabitants are obliged to live in the higher part of the town, so that all houses are located near each other. Hygienic and sanitary rules and regulations are not observed, which is partly due to the negligence of the officials in enforcing same. Having heard of some cases of smallpox in the town, I suggested that a vaccinator with sufficient virus be sent there. Diseases common in the locality are malaria, infantile convulsions, and tuberculosis.

"A house capable of holding fifty beds for a hospital is available in this town, and I found but three insane persons.

"*Dinalupijan.*—Up to March of 1903 there was an organized municipal board of health, but, owing to the resignation of the president of the municipal board of health at that time, there has been no organized board since that month, and the keeping of all records has been left in the hands of the municipal secretary. Through the inefficiency of the secretary the records were very much confused, and I was unable to obtain reliable information from his records.

"The sanitary measures of this town consist in the cleaning of houses, the sweeping of streets, and the burning of sweepings. Latrines are not cared for, and pigs may be seen on the streets. Cattle for public sale are not inspected.

"When cholera made its appearance steps were taken to face it, and hospitals were organized and maintained for the treatment of cholera patients.

"The town of Hermosa has been consolidated with that of Dinalupijan, and seems to be very poorly kept as regards hygiene and sanitation. Streets and yards are in an insanitary condition and animals are allowed to run loose everywhere. Diseases common in the locality are infantile convulsions, malaria, and tuberculosis.

"The towns of Mariveles, Bagas, and Morong, which are situated on the opposite coast of the Province of Bataan, have not been inspected as yet, as no means of transportation to these places is available. It was impossible to collect accurate vital statistics owing to the confused and inaccurate method in which they are kept.

"CHOLERA EPIDEMIC.

"Cholera made its appearance in the whole Province of Bataan at the same time. It commenced in the month of September and completely disappeared at the end of November last year. In some towns more cases were observed than in most barrios.

"The municipal board of each town enforced all steps adopted by the provincial board of health, giving special attention to the quarantine and disinfection of houses infected with cholera. The sale of green fruits and noxious food was prohibited, and inspection of food and drink was carried out.

"Bathing and the washing of clothes in the river have been prohibited for the purpose of keeping the river free from contamination.

"In some towns hospitals were organized for the reception of cholera patients, where all were treated free of charge. In all the towns of the province the cholera dead were buried in special cemeteries situated out of town. It is to be observed that the towns of Balanga and Orani had more deaths than the rest. Since November last no cases of cholera have been registered in the whole Province of Bataan.

"CUSTOMS AND HABITS OF THE PEOPLE.

"Generally, it can be stated that the inhabitants of the Province of Bataan understand hygiene and sanitation, and it is to be observed that the wealthy people commonly practice these rules, making a very good impression upon the poorer class. The poor people do not generally practice these rules on account of their methods of living.

"The towns on the coast are much better supplied with the necessities and conveniences of life than those in the interior. I observed that these people pay very little attention to the sick, wherefrom a very high mortality occurs, especially among children.

"Notwithstanding what has been stated, in my opinion this province can be considered in good sanitary condition, and for its improvement I suggest the following:

"(1) That a president of the provincial board of health be named as soon as possible, so that he may organize municipal boards of health necessary for the proper sanitary maintenance of towns.

"(2) That more vaccinators be sent with fresh and sufficient vaccine virus to protect the province from smallpox.

"(3) That help be extended to the poorer towns, to enable them to pay the salary of a capable president of the municipal board of health.

"(4) That all domestic animals suffering from incurable, infectious, or contagious diseases be killed.

"(5) That the coöperation of all municipal boards of health with the provincial board of health be insisted on."

REPORT OF SPECIAL SANITARY INSPECTION OF THE PROVINCE OF CAVITE.

By Dr. PAUL C. CLEMENTS, *Special Inspector.*

Dr. Paul C. Clements, medical inspector, under date of the 23d of February, 1904, reports that he has inspected all the municipalities of the Province of Cavite, in addition to the office of the president of the provincial board of health, and finds as follows:

PROVINCIAL BOARD OF HEALTH.

The provincial board of health of Cavite consists of Mariano Felisardo, L. M., president; Russell Suter, provincial supervisor, and Isabelo Diwa, L. M., president of the municipal board of health of the town of Cavite.

The president of this board has been active in securing the adoption by the various municipalities of a series of ordinances relating to sanitary affairs, which are fairly complete, and which, as they are enforced, and in proportion to the intelligence with which they are enforced, will be found to be effective instruments of sanitation. The clerical work of the office is alone a heavy task for one person, but it is well kept up, and well systematized. Reports are regularly received from all municipalities, showing the number of births, deaths, marriages, vaccinations, cases of contagious diseases, sanitary inspections, etc.

Smallpox has been present in nearly all towns in this province during the year 1903. The four Insular vaccinators who were assigned to this province were put to work in the towns of Cavite, Imus, Naic, and Indan, where they were put at the time of my inspection, having been at work for about two weeks, and having averaged only about forty vaccinations per man per day for the time they had worked, which appears to me a very low figure.

The municipalities of this province have recently been reduced in number from twenty-three to eleven, enabling the provincial president to retain the best of the municipal presidents of boards of health, and this has been done.

MUNICIPAL BOARDS OF HEALTH.

Cavite.—The board of health consists of Isabelo Diwa, L. M., president; Dr. W. H. Bucher, naval surgeon; Richard Leonard, teacher; José Salamanca, pharmacist, and Ramon Maceo, elected member. Four sanitary inspectors are employed for house-to-house inspection. Garbage is collected at the expense of the municipality, and a small crematory is maintained. The former municipality of Cavite has a good market; the districts of San Roque and Caridad, which are included since the fusion, have only temporary structures. The markets and slaughterhouses receive frequent visits from both the provincial and municipal presidents. The municipal ordinances relating to sanitary matters in force cover the following points: Quarantine of infectious and contagious diseases, regulation of cemeteries and interments, regulation of sale of food products, inspection of animals killed for food and inspection of abattoirs, impounding of loose animals, compulsory vaccination, cleaning and inspection of private premises, and the reporting of deaths and births.

The records of this office are in good shape and the required reports are promptly forwarded. The former municipalities of San Roque and Caridad are now included in Cavite.

Noveleta.—This town now includes the former municipalities of Rosario and Cavite Viejo. The president of the municipal board of health held the same appointment in Cavite Viejo previously to the fusion of the towns. His name is Andres Malahab, and he is a graduate cirujano ministrante. The other members of the municipal board of health are Celedonio Santa Maria, elected member, and Mr. Whiting, school-teacher.

The municipal sanitary ordinances in force cover the following: Cleaning and inspection of premises, regulation of sale of food products, and inspection of markets and slaughterhouses, the reporting of births and deaths, regulation of cemeteries and interments, quarantine of infectious and contagious diseases, and compulsory vaccination.

Each of the three districts corresponding to the former independent towns has a provisional market and abattoir. No provision has been made by the "consejo" for a sanitary inspector to assist the president, on account of the poverty of the municipal treasury, and it is more than one man can possibly do to carry out the inspections already provided for in the ordinances. The time of the president is principally spent in house-to-house inspection and the vaccination of children. The clerical work is kept in good shape.

San Francisco de Malabon.—This town includes the former municipalities of Santa Cruz and San Francisco de Malabon. Previously to the fusion the president of the municipal board of health, Arcadio Arayeta, held the same appointment in Santa Cruz. He is a graduate cirujano ministrante. The other members are Dr. J. O'Neill, the military surgeon; Carl D. Behrens, school-teacher, and Benigno Sarayba, elected member.

The sanitary ordinances in force provide for cleaning, drainage, and inspection of private premises; reporting of births and deaths; quarantine and compulsory vaccination, and impounding of loose animals.

The president of the board of health has one sanitary inspector to assist him. Office work is well kept up.

Imus.—With this town are fused the former municipalities of Bacoor and Perez Dasmariñas. The president of the municipal board of health, Pedro Bañas, is a graduate cirujano ministrante, and was formerly the president of the board of health of Bacoor. The other members of the board are Dr. W. H. Dade, military surgeon; E. T. Eichenberg, school-teacher; Mariano Carreon, pharmacist, and Cayetano Topacio, elected member.

The municipal ordinances provide for the cleaning, drainage, and inspection of private premises; regulation of sale of food products; regulation of undertaking establishments and interments; the housing of live stock apart from living quarters; quarantine; compulsory vaccination; the reporting of births, deaths, and contagious diseases.

No provision for sanitary inspectors had been made at the time of my visit, but the matter was in projection with good prospect of passing the council. Office work in good shape.

Naic.—Naic now includes the former municipality of Ternate. The local board of health consists of Miguel Garcia, president, a graduate cirujano ministrante, with service since 1902; Dr. M. E. Hughes, military surgeon; Clyde A. Dewitt, school-teacher, and Ariston Avilla, elected member.

The municipal ordinances make provision for the cleaning of private premises and of the section of street corresponding to same by owner or occupant, and for sanitary inspection; notification of births, deaths, and contagious diseases; quarantine and compulsory vaccination; regulation of sale of food products, and prior inspection of animals killed for food.

One sanitary inspector is provided for the district of Ternate. The collection and cremation of garbage at the cost of the town was being discussed. Clerical work in good shape.

Maragondon.—Maragondon now includes the former municipality of Magallanes. The president of the local board of health is Ambrosio Arca, a graduate cirujano ministrante, who has held the office since 1902; H. H. Kenogy, school-teacher, and Juan Narvaez, elected member.

The municipal ordinances provide for the cleaning and inspection of private premises; the reporting of births, deaths, and of sickness; quarantine and compulsory vaccination; regulation of interments; regulation of sale of foods; prior inspection of animals killed for food; impounding of loose animals; and the prohibition of use of any part of animals dead of infectious disease.

The streets are cleaned at the cost of the municipal treasury, and the collected garbage is burnt in the open. One sanitary inspector is provided for, and is assigned to the district corresponding to the former municipality of Magallanes. The required reports are intelligible and promptly rendered, and the records are properly kept.

Indan.—The local board of health consists of Esteban Abutin, a graduate cirujano ministrante, president; C. J. Anderson, school-teacher; Vicente Jeciel, pharmacist, and Marcelo Basa, elected.

The municipal ordinances provide for sanitary inspection of private premises, quarantine and compulsory vaccination, regulation of interments, regulation of sale of foods, and prior inspection of animals killed for food.

The municipal police are made to keep the streets clean, and garbage is burnt in the open. A proposal for the appointment of a sanitary inspector was before the consejo at the time of my visit, but had not yet been acted upon. Records and reports are properly kept.

Alfonso.—The board of health of this town, with which the former municipalities of Bailen and Mendez Muñez are now fused, consists of Raimundo Jeciel, president; Lorenzo Angeles, elected member, and Moses Flynt, school-teacher. The president studied two years at Santo Tomas, and is a pharmacist in addition, having been an employee of the druggist Zobel in Manila.

The ordinances provide for sanitary inspection of private premises; notification of births, deaths, and contagious diseases; quarantine; compulsory vaccination; regulation of interments; regulation of sale of food products, and prior inspection of animals killed for food.

The street in front of each dwelling is to be cleaned by the occupant of the dwelling; the plaza and market at the cost of the municipality. One sanitary inspector is provided for. Clerical work is well kept up.

Silang.—The board of health of this town, with which the former municipality of Amadeo is now united, consists of Inocencio Cariaga, who held the same appointment in Noveleta for nine months during 1903, and was formerly an attendant in a Spanish military hospital; H. J. Hawkins, school-teacher, and Fausto Montoya, elected.

The ordinances provide for sanitary inspection of private premises, quarantine, compulsory vaccination, regulation of sale of food stuffs, and prior inspection of animals killed for food.

The president of the board of health had taken charge only about two weeks before the date of my visit, and had not become thoroughly accustomed to his new surroundings. The most conspicuous lack in the ordinances, in the matter of the regulation of interments, he promised to take up at once. The records of Silang proper for 1903 were complete and in fair shape, but those of the fused town of Amadeo were in utter confusion, due to the fact that the officials had been in jail during a part of the year on charges of complicity in stealing carabaos. On this account it has been necessary to omit Amadeo in the preparation of the mortality tables which form a part of this report.

Carmona.—The president of the board of health is Mamerto de Leon, with two years at Santo Tomas and nearly two years' service in his present capacity. Perpetuo Mapano is the elected member. The school-teacher who formerly served as member of the board has been relieved, and the new teacher, Godofredo Ebing, has received no credentials as a member of the board of health.

The sanitary ordinances provide for sanitary inspection of private premises, quarantine, compulsory vaccination, regulation of sale of food stuffs, prior inspection of animals killed for food, and the regulation of interments.

Each householder is expected to keep the street in front of his premises clean. Garbage is burnt in the open. Carmona has a small isolated house reserved for use as a pesthouse. The clerical work is in good condition.

Corregidor.—The presidency of the board of health has been vacant for some time, but it is now filled by the municipal president, Juan Medina, a man of good intelligence. The other members are Dr. Moncrieff, of the Corregidor Hospital; Gervasio, elected member, and Estanislao Alabastro, school-teacher. The president is assisted by one sanitary inspector.

The ordinances provide for sanitary inspection of private premises, regulation of sale of food products, quarantine, and such other municipal legislation as is needed is promised for the near future. The records are in good shape.

MORTALITY STATISTICS.

The best commentary upon the sanitary condition of the province, as well as upon the intelligence, professional knowledge, and activity of the local health officials, will be found in the results obtained by a study of the mortality statistics which are presented below in tabular form. The population figures are copied from the official census returns as furnished to the provincial office, and the mortality returns are in most cases taken direct from the municipal registers—in a few cases from reports in the office of the provincial board of health.

Death rate, by towns, for Province of Cavite for 1903.

Town.	Population	Total deaths.	Rate per 1,000.	Combined.
Cavite	4,495	198	44.05	42.71
San Roque	6,158	253	41.05	
Caridad	4,917	214	43.52	
Noveleta	2,362	122	51.65	51.31
Rosario	6,608	297	44.94	
Cavite Viejo	6,173	358	57.99	
San Francisco de Malabon	9,673	460	47.56	37.35
Santa Cruz	8,801	230	26.13	
Imus	12,790	790	58.52	61.30
Bacoor	10,998	689	62.65	
Dasmariñas	3,047	208	68.26	
Naic	9,235	481	52.08	52.24
Ternate	2,460	130	52.84	
Maragondon	7,201	304	42.22	43.72
Magallanes	3,503	164	46.82	
Alfonso	5,692	170	29.86	32.68
Bailen	2,505	135	53.89	
Mendez Nuñez	3,741	85	22.72	
Indan	11,978	557	46.50	----------
Silang	5,648	264	46.75	----------
Carmona	2,609	118	45.23	----------
Corregidor	703	23	32.72	----------
Total	131,472	6,219	47.30	----------

Death rate, by months, for Province of Cavite for 1903.

Town.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Cavite	10	13	11	8	7	12	13	7	13	21	20	63
San Roque	9	21	15	10	17	16	20	17	30	47	51	------
Caridad	12	11	9	15	15	6	16	31	30	30	28	11
Noveleta	4	4	9	4	6	3	7	7	8	10	11	49
Rosario	43	32	32	12	14	9	28	21	43	29	34	------
Cavite Viejo	26	28	33	18	20	21	31	41	45	56	39	------
San Fransisco de Malabon	44	40	31	32	25	22	40	85	34	32	25	50
Santa Cruz	10	15	23	17	18	14	32	27	27	23	24	------
Imus	45	47	41	52	59	58	72	79	60	97	80	69
Bacoor	35	31	43	40	35	41	46	64	83	147	55	69
Dasmariñas	12	14	15	15	8	14	11	17	17	30	32	23
Naic	44	41	49	28	38	24	45	52	66	45	21	28
Ternate	15	19	8	6	6	16	11	16	12	12	9	------
Maragondon	33	27	29	35	31	28	36	22	27	13	11	12
Magallanes	19	20	26	18	16	9	------	------	------	------	------	------
Alfonso	14	16	11	17	23	16	12	6	15	7	11	12
Bailen	15	12	7	8	4	9	25	16	15	11	6	7
Mendez Nuñez	13	3	8	3	3	6	7	10	7	14	10	7
Indan	76	55	69	38	74	59	42	35	40	29	19	21
Silang	29	20	22	27	27	23	27	17	24	24	11	13
Carmona	12	13	17	12	10	4	10	9	5	10	9	7
Corregidor	------	2	1	2	1	4	3	1	1	2	4	2
Total	520	484	504	417	457	414	545	595	614	701	521	454
Rate per 1,000, about	------	------	------	------	------	------	46.6	53.3	56.9	62.8	48.3	41

The birthrate slightly exceeded the death rate for the year. I have counted 6,383, and lack the figures for an occasional month in individual towns, which I estimate would bring the figures up to, in round numbers, 6,500.

These figures are merely approximate, as it has been the custom in many towns to copy the records of the parish church, and, in fact, some towns frankly report not the number of children born but the number baptized. It is more than likely that the same cause lessens the value of the death lists, particularly in the matter of giving the cause of death, and it is hard to see how this can be helped, in view of the large area covered by the municipal organizations and the unwillingness or inability of the municipality to pay horse hire for the president of the board of health.

Infantile convulsions.—By far the largest single contributor to the death rate is this, which is variously entered in the death reports as convulsiones infantiles, eclampsia, and alferecia. These terms are apparently used as catch-alls for the infantile mortality from all causes, as deaths under 2 years of age from any other cause than these and gastro-enteritis are seldom met with in the registers. Infantile convulsions furnish nearly one-third of the entire mortality and reach to 30 per cent of the birthrate. The figures are shown in detail in the following table:

Infantile convulsions.

Town.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Cavite	2	6	5	3	1	4	4	2	2	6	9	27
San Roque	3	6	5	4	2	2	4	5	14	14	30	------
Caridad	6	5	2	3	2	2	7	10	15	15	16	9
Noveleta	1	------	4	1	2	2	4	4	2	1	10	35
Rosario	16	5	4	2	3	------	17	6	18	11	20	------
Cavite Viejo	3	3	7	4	10	8	18	30	26	25	25	------
San Francisco de Malabon	9	7	6	6	11	7	10	8	4	6	8	25
Santa Cruz	2	7	8	6	6	8	11	7	15	12	18	------
Imus	15	16	15	19	23	22	33	38	21	28	28	33
Bacoor	19	12	17	16	14	14	18	27	18	35	28	38
Dasmariñas	2	2	------	------	4	4	3	4	------	------	------	------
Naic	20	11	13	4	13	8	18	19	13	13	9	14
Ternate	2	4	3	------	1	2	7	4	3	4	1	------
Maragondon	3	3	4	13	10	7	9	9	8	6	4	2
Magallanes	1	7	4	2	5	------	2	4	7	2	6	3
Alfonso	4	8	5	5	7	6	4	6	3	3	5	6
Bailen	------	------	3	1	------	2	2	1	2	2	------	1
Mendez Nuñez	------	------	------	------	------	1	2	2	------	1	1	2
Indan	18	18	18	12	9	11	11	14	11	6	4	10
Silang	7	5	3	6	3	5	3	3	3	3	2	3
Carmona	4	2	3	5	3	------	3	4	1	------	4	------
Corregidor	------	2	------	1	1	------	1	------	1	1	2	2
Total	137	129	124	113	130	115	191	207	187	193	225	215

Total, 1,966, or 14.95 per thousand.

Fevers.—These are next in importance, as contributing to the death rate, to infantile convulsions. Scattered cases of typhoid fever are reported, 31 in all for the province. One town, Maragondon, reports 39 nine deaths from catarrhal fever and 7 from fevers in which differential diagnosis was not made. The bulk of the deaths from fever are reported as from malaria in various forms and as from calentura. It is noticed that Ternate, Magallanes, Mendez Nuñez, Silang, and Carmona report no other form of fever than calentura, while eleven towns return no deaths from this cause. Of the towns which report both malaria and calentura, in two, Santa Cruz and Indan, there is no apparent difference in the seasonal incidence, while in Dasmariñas and Bailen the monthly incidence is in inverse proportion. The figures are:

Calentura.

Town.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Santa Cruz	------	------	------	------	------	------	5	3	------	3	------	------
Dasmariñas	------	------	------	------	------	------	------	------	6	12	8	------
Ternate	10	5	2	2	2	2	1	4	5	6	4	------
Maragondon	2	------	------	------	------	3	------	------	------	------	------	------
Magallanes	9	2	6	8	4	3	5	2	2	3	2	1
Indan	16	7	15	9	13	10	4	2	------	------	------	------
Bailen	------	3	------	3	2	2	6	2	3	1	------	3
Mendez Nuñez	9	3	2	3	1	5	3	6	3	1	7	5
Silang	14	8	11	13	13	9	14	8	8	8	4	7
Carmona	1	4	5	2	4	2	3	------	------	2	4	2
Total	61	32	41	40	39	36	41	29	27	36	29	18

Malarial diseases.

Town.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Cavite	1	2	1			1	1		1	1	1	2
San Roque		1				2	1	1	2	5	4	
Caridad			2		1			4	2	3	3	
Noveleta			1					1	2			
Rosario		4	1	4	7	3	5	3	8	5	3	
Cavite Viejo	7		3	2	1	2	1					
San Francisco de Malabon	17	20	5	9	8	6	13	13	15	11	1	7
Santa Cruz							1	1	3	2	2	
Imus	11	10	6	10	7	10	6	11	5	12	5	8
Bacoor	5	2	6	2	4	1	1	6	8	3		8
Dasmariñas	8	10	12	12	4		5	6				4
Naic	3	3	3	4	9	2	16	8	10	8	5	6
Maragondon	10	3	2	2	6	7	3		4	2	1	4
Alfonso	7	4	4	8	6	6	1	3	5	4	2	3
Bailen	8	5	1	4								
Indan	29	19	23	10	32	22	14	6	12	10	6	6
Total	106	83	73	67	85	62	68	63	77	66	33	38

Total deaths from fevers.

Malarial	818
Calentura	427
Typhoid fever	31
Others	46
Total	1,322

Or 10 per thousand.

Smallpox.—Nine towns in the province, whose mortality is shown in detail below, were seriously infected during the year:

Smallpox.

Town.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Rosario	5	18	18	2									43
Cavite Viejo		14	16	4			1	1			1		37
Imus			3	3	4	5	19	10	13	12	11	6	86
Bacoor			1	7	5	4	4	7	2	18	4	6	58
Dasmariñas						1		3	3	2	1	6	16
Ternate	3	5	2	3	2	4		4					23
Maragondon	6	9	10	6									31
Magallanes	9	11	13	4	3	2	1						43
Bailen					2	5	15	12	8	9	3	3	57
Total	23	57	63	29	16	21	40	87	26	41	20	21	394

Five towns—Cavite, Santa Cruz, Alfonso, Mendez Nuñez, and Corregidor—report no mortality from this disease; eight report a mortality which is comparatively unimportant: San Roque, 7; Caridad, 6; Noveleta, 1; San Francisco de Malabon, 5; Naik, 9; Indan, 6; Silang, 4; Carmona, 1; total	39
Total deaths for the province for the year	433
Rate per 1,000 (about)	3.27

It will be noticed that there was no serious mortality from this disease after June except in the four towns of Imus, Bacoor, Dasmariñas, and Bailen. In these towns, the continuance of the disease month after month, and for a time with increasing incidence, shows a remarkable lack of success in handling the situation, the principal factors in which must have been a great laxity in the enforcement of quarantine, and neglect of vaccination or inefficiency in its performance.

Gastro-enteritis and cholera.—The mortality report of these two diseases is shown below. The two tables are presented side by side, and discussed jointly for the purpose of showing some interesting parallels. The figures for gastro-enteritis include all entries of "gastritis," "enteritis," and "diarrhea." Comparatively few of the cases which have been included in the "cholera" table were entered frankly as such. All cases entered as "colera nostras," "enteritis coleriforme," and "fiebre perniciosa" are included.

Gastro-enteritis.

Town.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Cavite	4		1		1	1	1		1		1	4
San Roque		2		1	1		2		1	5	1	
Caridad		1	1					3		1	3	
Noveleta					3					1		2
Rosario					1	1		2	2	2		
Cavite Viejo	2				5	1	5	6	9	9	2	
San Francisco de Malabon	1					1	5	32	7	3	2	
Santa Cruz					1	1	8	6			1	
Imus	4	6	2	10	7	8	4	9	12	7	3	10
Bacoor	1	5	2	3	2	4	7	9	34	19	7	12
Dasmariñas												6
Naic			5	1	1			6	5			
Ternate									2			
Maragondon							5	1	7	1		
Magallanes				1	1				1	2		
Alfonso		2		1	3				1	2		
Mendez Nuñez								2		9	1	
Indan		1	1	1	1		4	3	4	1		
Silang			1		1		3		3	2		
Carmona	1	1	1									
Total	13	18	14	18	28	17	44	79	89	64	21	34

Cholera.[1]

Town.	May.	June.	July.	August.	September.	October.	November.	December.
Cavite	1				2	1		
San Francisco de Malabon				16				
Imus						17	1	2
Bacoor						48		
Dasmariñas		6			5	8	15	4
Naic					23	6		
Ternate		2						
Maragondon	1							
Corregidor		1						
Total	2	9		16	30	80	16	6

[1] None reported previous to May.

The total for gastro-enteritis is 439, or 3.34 per thousand, and for the group which I have classed as cholera 159, or 1.29 per thousand.

In respect to the mortality attributed to gastro-enteritis, the towns of the province at once divide into two groups, one comprising the towns of Imus, Bacoor, Cavite Viejo, and San Francisco de Malabon, which are grouped geographically, as well as for statistical study; the other including the remainder of the province. The first group reports a total of 274 deaths from gastro-enteritis, or 6.88 per thousand; the remainder of the province reports only 162, or 1.76 per thousand, so that the mortality of the first group from this one cause is nearly fourfold that of the remaining towns. Cavite, which shows the highest mortality of the second group, only reached to 3 per thousand.

Of the four towns of the first group, it is to be noticed that Bacoor, which reported only 17 deaths from gastro-enteritis during the first six months of the year, reported 7 deaths in July, 9 in August, 34 in September, and 17 in October, together with 48 attributed to cholera nostras. San Francisco de Malabon, which had reported only two deaths from gastro-enteritis from January to June, reported 5 in July, and 32 in August, together with 16 deaths from suspected cholera. Cavite Viejo, which had reported only 8 deaths previous to July, reported 29 in the four months from July to October, inclusive. Imus, which was the only town in the province, with the single exception of Bacoor, to show a considerable mortality from gastro-enteritis during the first six months of the year, showed a still further increase, although slight, during these months, and at the same time reported 17 deaths from suspected cholera in October.

Turning back, now, to the statistics for infantile convulsions, three of this same group of four towns, San Francisco de Malabon being omitted, show a considerable excess mortality from this disease also, the figures being 23.60 per thousand for this group, against 12.38 for the remainder of the province, as a whole, and 18.71 for the next highest town. Then likewise, and markedly in Cavite Viejo, and to a less extent in Imus and Bacoor, the highest incidence of infantile convulsions occurred in the same months as the highest incidence of gastro-enteritis, and also the cholera incidence. I feel therefore that the internal evidence furnished by these tables, although purely circumstantial, is sufficiently complete to warrant the following conclusions:

(1) Sporadic cases of cholera occurred in Imus and Bacoor during the months from January to June, inclusive, which were not diagnosed as such.

(2) From July to October, inclusive, the number of cases increased almost to epidemic proportions, although the majority of the cases appear still to have been unrecognized, and spread to the neighboring towns of Cavite Viejo and San Francisco de Malabon.

(3) That a large portion of the mortality of this group of towns attributed to gastro-enteritis and infantile convulsions should be considered as due to cholera; certainly so much of it as is in excess of the rate of the next highest town, and probably all in excess of the average rate of the province.

Revised cholera statistics for the group of towns above mentioned, including excess of deaths attributed to gastro-enteritis and convulsions of children, over rate of next highest town.

Town.	Imus.	Bacoor.	Cavite Viejo.	San Francisco de Malabon.
Reported cholera	20	48	--------	16
Gastro-enteritis	39	70	20	21
Infantile convulsions	57	50	43	--------
Total	116	168	63	37
Rate per thousand	9	15.3	10.2	8.9

Revised cholera statistics for the group of towns above mentioned, including excess of deaths attributed to gastro-enteritis and convulsions of children, over average rate for the province.

Town.	Imus.	Bacoor.	Cavite Viejo.	San Francisco de Malabon.
Reported cholera	20	48		16
Gastro-enteritis	56	86	28	34
Infantile convulsions	137	119	82	
Total	213	253	110	50
Rate per thousand	16.4	23	17.8	5.2

These revisions raise the figures for cholera for the entire province to 459, or 3.49 per thousand for the lower calculation; and to 701, or 5.33 per thousand for the higher.

Town.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Rate per 1,000.
Cavite	2	1	2		1	1	1	1	1	1	1	8	8.8
San Roque	1	2	8	1	8	2	2	4	8	10	1		5.2
Caridad	2	1	1	1	3	2	2	8	1	4	8		4.5
Noveleta			4	2		1	1	1	2	4	1	4	8.5
Rosario	1	2	4	1	2	1	1	2	2	1	4		8.8
Cavite Viejo	4	7	3	5	1	5	8	2	5	6	5		7.5
San Francisco de Malabon	11	10	4	2	1	1	1	4	2	5		9	5
Santa Cruz			3	2	2		3	4	2	1	2		2.1
Imus	1				1			2		1	10	5	1.5
Bacoor		5	4	8	4	4	8	5	16	9	7	12	7
Dasmariñas	2			2		3	1	3	2	5	8	1	7
Naic	2	1	1	4	2		6	2	3	8	1	1	8.4
Ternate		1	1		1			2			2		2.8
Maragondon	2	2	3		1	2	2	4	8	8	5	2	4
Magallanes			1	2		1	2					1	2
Alfonso			1	1	1		2	1	1	1	1	1	1.8
Bailen			1			1		2					1.6
Mendez Nuñez	4		1						2	1			2.2
Indan	5	4	2	1	7	8	4	3	5	5	4	2	8.9
Silang	3	4	3	2	2	7	5	8	8	5	8	1	7.8
Carmona		2	1	1	2		1	2	1		1	6	6.5
Corregidor			1				1	1			1		5.7
Total	40	42	34	30	34	34	46	51	54	70	55	48	
Rate per 1,000													4.17

In the towns of Noveleta, Bacoor, Cavite Viejo, and Dasmariñas the rate was 7 per thousand or greater, and in Bacoor and Dasmariñas the heavy mortality attributed to this disease occurred in the months of August, September, and October—that is, during the existence of cholera. The cases are not sufficiently numerous to allow of a safe generalization, and the return would not be suspected except in connection with the condition of affairs demonstrated in the discussion of cholera.

Dysentery.—The towns of Noveleta, Bacoor, Carmona, and Corregidor report no mortality from this disease. The only noticeable features of this table are that the seven deaths reported from Imus all occurred just when cholera was apparently declining and that the largest monthly reports from Naik immediately precede a cholera outbreak there.

Town.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Cavite					2				1			2
San Roque		3	1					2				
Caridad	1				1			1				
Rosario	3		1	2	1			3	3	2	1	
Cavite Viejo	1					2		1				
San Francisco de Malabon			1									
Santa Cruz								1				
Imus											7	
Dasmariñas							2		1			
Naic	2	2			1		3	7	4	1	1	
Ternate						1	2					
Maragondon		1	1	1	2		6	1			1	
Magallanes							1					
Indan	2		2		4	1	3	2	2	1		
Alfonso	1	4	1	1	1			3	1			
Bailen	2	3	1				1					
Mendez Nuñez										1		
Silang										1		
Total	12	13	8	4	12	4	18	21	12	6	10	2

The rate per thousand for the province is 0.93.

Beri-beri.

Town.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Cavite									1	3		
San Roque									1	2	3	
Caridad							1		1	1	1	
Noveleta										1		2
Rosario		1							6	5	3	
Cavite Viejo							2	1		7	4	
San Francisco de Malabon		1										
Santa Cruz		1	1							3	1	
Imus											7	8
Bacoor	1		1	1		2	2	2	2	7	5	3
Dasmariñas			2									1
Naic				2				1		1	2	2
Maragondon			2	3			1	2				
Magallanes									2		1	
Alfonso							1		1	1		
Bailen		1										
Mendez Nuñez					1		1		2	1		
Indan		1	1		1			3	2	3	1	
Carmona			1					1				
Corregidor											1	
Total	1	5	8	6	2	2	8	10	18	35	29	11

Total cases, 137; rate per thousand, 1.04.

In addition to the above table, 39 deaths were reported from "dropsy," 29 of which were from the town of Imus alone. These 29 cases were all reported previous to the fusion of Imus and Bacoor, and a consequent change in health officers. Previous to the change no deaths from beri-beri had been reported from Imus, while immediately following the change "dropsy" disappeared from the mortality register and beri-beri began to appear. Ternate and Silang report no deaths, and are claimed to be free from the disease.

DEATHS NOT INCLUDED IN PRECEDING TABLES.

Of the 6,219 deaths occurring in the province during 1903, 5,286 are accounted for in the above tables. Of the remainder, a considerable number were attributed to "old age," a proportion to result or accidents of parturition, and there were approximately 50 deaths due to accident or traumation, about one-half of which were gunshot or bolo wounds, reflecting the disturbed condition of the province.

ANIMAL DISEASE.

Although a number of deaths of horses from glanders, and also of hogs and a few carabaos, were reported during the year, the various municipalities were claimed to be free from animal disease at the time of my visit. Nevertheless, I believe it to be the case that there are scattered cases of glanders existent, and that the disease never entirely dies out. The value of a sick pony, in the eyes of the average villager, constitutes a property interest sufficient to induce him to evade all efforts of the health authorities to stamp out the infection by the destruction of sick animals, as the owner of one can seldom be made to understand that it is worse than valueless, and regards the health officer as seeking to do him injury instead of conferring a benefit upon the community by the destruction of infected stock.

SANITARY CONDITION OF TOWNS.

The majority of the towns of this province and those of most importance are built on the coast plains. Cavite and Noveleta, with their barrios, and Bacoor, which is a barrio of Imus, are on ground from two to three feet above sea level, and in consequence are without sufficient drainage. The other towns are sufficiently elevated for purposes of practical drainage, while Indan, Alfonso, and Silang are on high, rolling ground and enjoy a mean temperature probably 10° lower than the remainder of the province.

The usual water supply is obtained from wells or springs outside of the built-up area and appears to be of fairly good quality. Naik depends upon a large creek and Cavite and Noveleta have no other supply than wells within the populated area.

The cemeteries were in most cases properly located. That at Carmona is too near the populated area and otherwise needs attention, which the municipal officials promised to give at once.

Garbage and rubbish in all these towns seem to be promptly disposed of, as no collections of any size were seen, while the streets appeared clean. The gravest fault in the sanitary condition of the towns of this province is in connection with the disposal of human and animal excreta. Stables were usually in bad condition, and except in Cavite proper there are no other kind of closets except dry-earth pits, which are shallow, ill-looked after, and many houses are not even provided with these. Cavite has a number of public midden sheds, built on the sea wall, with seat holes projecting directly over the water, and there are some stone vaults in the town.

SPECIAL REPORT ON SANITARY WORK IN THE CITY OF CEBU.

By Dr. ARLINGTON POND, *Special Inspector.*

Dr. Arlington Pond, medical inspector, under date 22d August, 1904, makes the following report of work done by the provincial board of health of Cebu, Philippine Islands, and the municipal board of health of the town of Cebu from April 16, 1904, the date of his arrival in Cebu, until August 18, 1904, the date of his departure:

The first week was spent in learning the situation and getting acquainted with the town authorities. Previous to April 16 there had been reported considerable friction between the boards of health of both province and town and the municipal authorities. The health work had been for several months in the hands of a committee composed of three American physicians and two Filipinos whose work was supposed to be advisory. This committee was a great mistake and only increased the friction which already existed. It was found that everything in the way of sanitary work had been stopped for some time due to stubbornness and misunderstanding on both sides. Had the time spent by each side in calling the other hard names been spent in sanitary work, and had the money appropriated by the Insular Government for this so-called "executive committee" been spent in sanitary work instead of in salaries, much might have been accomplished.

It can be seen that the first thing to be done was to restore harmony if possible and to get the assistance of the municipal authorities instead of their opposition. This was accomplished in a large degree by careful handling and decent treatment.

MUNICIPAL BOARD OF HEALTH.

There was practically no municipal board of health organization and no work was being done. The question of the hour was whether or not the municipality should furnish the doctor with a vehicle. The president said it was not only not customary but impossible for them to do this, as the town could not afford the expense. The doctor, supported by the executive committee, claimed it was impossible for him to do his work without one and that his salary of ₱83, Philippine currency, per month was too small for him to pay for the hire of one. Although a vehicle would have been a great assistance, it was quite possible for the doctor to get along without one, especially as there was no law to compel the town to furnish one. The doctor was informed that he must perform all the duties of his office or resign. He preferred to do the former and get along without a vehicle. Both sides had simply made this question of the vehicle an excuse for showing their ill feeling for each other, and the president's plea of poverty was equally as weak an excuse as was the doctor's that he must have transportation because the distances were so great.

As there were neither sanitary inspectors nor vaccinators in the town a request for five of the former and two of the latter was made and granted, and daily inspections of the town and vaccinating were at once begun. The municipal prisoners, of whom there are usually about thirty, were put at work on the streets and canals and a general cleaning up of the town began.

LEPER HOSPITAL.

Although Cebu was insanitary and bubonic plague was present, and there was friction between the different authorities and no sanitary work was being done, these conditions were all secondary in importance to the leper situation. Unless something was done at once to improve the condition of the lepers, suffering was sure to result. Two hundred and forty lepers were living in one stone building and two nipa barracks. The former was extremely insanitary and unfit for the purpose and the latter were in the last stages of decay and ruin. There was no fence around the place and no way of keeping the inmates confined, and as the hospital was only on the outskirts of Cebu the patients mixed freely with the people of the town. In view of this bad condition of affairs and the fast-approaching rainy season, tents were immediately wired for to supply shelter for the ones living in the barracks. This was intended only as a temporary relief until they could be transported to Culion, which, it was understood, would be shortly. Later, when it was found that Culion would not be ready for some time, the building of a decent hospital was strongly advised. This recommendation was immediately acted upon and as a result ₱6,000, Philippine currency, were made available for the purpose. Plans and specifications for a hospital consisting of two buildings, 300 feet long and 20 feet wide, made of nipa and bamboo on a frame of hard wood, with cook house and closets, and, most important of all, a fence 6½ feet high surrounding the whole place, were immediately drawn up by Mr. De Lano, provincial supervisor, and a contract entered into with D. C. Taton, an American resident of Cebu, for the construction.

Bids were not advertised for, as it was wished to expedite the construction as much as possible. The estimates of some natives who had bid for the same thing during the time of my predecessor were so high that it was not thought best to consider them. For example, they had heard that the amount of the appropriation was ₱6,000, so their bids were within ₱3 or ₱4 of that amount. They were bidding for the appropriaton and not for the work. Although there were many delays due to bad weather and inability to get labor, the hospital is now finished and ready for the accommodation of 300 patients, and as many as 400, if necessary. Comfort and protection are afforded to the inmates and protection to the people of the town. Cooked rations are furnished them now instead of the uncooked food as formerly. There should be a guard over the place, but it seems the Constabulary are not available. A request was made to the provincial board, but they referred it to the municipal council, who returned answer that they did not have sufficient policemen. A guard is not absolutely necessary just at this time, but as soon as the news that they are to be sent to Culion gets circulated among the lepers it will be difficult to keep them confined without one. The provincial treasurer has given assurance that, when that time approaches, the guard will be forthcoming.

After the removal of its present occupants to Culion the hospital can be rapidly filled again with others from Cebu Province as well as from the neighboring provinces, although the filling of the hospital the second time will be a difficult matter, in spite of the fact that there are over 1,000 lepers in the province, for, when it is known that Cebu is but a half-way station for Culion, it will not be as popular as it is now. The good quarters, good food, good clothes, and 20 cents a week make the place very attractive. But three or four year's use, at least, can be got out of the place. The leper question in Cebu is of such great importance that, if the board of health had not taken prompt action, the Roman

Catholic Church, through its head in that province, would soon have done so and the results would surely not have been gratifying to the ones responsible for the conditions. The old buildings occupied by these people were worse than one's imagination could picture them and beyond all possibility of repair, and it was only through the influence and watchfulness of Padre Filemon Flores that the inmates did not leave.

PROSTITUTION.

The municipal council was induced to adopt the vagrancy ordinance, and with the assistance of the police a general round-up followed. The infected ones, of whom there were 55, were sent to the hospital, where they remained until cured. Most of the remainder took to cover, and many of them left the province. As long as the police are vigilant public prostitution can be reduced to the minimum, but they are inclined to relax very frequently, so a big round-up every few months will be necessary.

STREET CLEANING.

The cleaning of the streets and the removal of garbage is let out by contract, and, as usual in these cases, unless carefully watched, the service is very poor. The public dump was located on the water front, in the very heart of the business district and close to many residences, the occupants of which had frequently complained of the bad odor and the great number of flies, but without result. One of the first things done was to change the location of this nuisance to the outskirts of the town, where the contractor agreed to burn all refuse. He carried out this agreement every time his attention was called to it. This same street department has given the health authorities more annoyance than any other one thing in the health work of Cebu. Complaint after complaint was made to the president by not only the board of health but by private individuals. It was recommended to the president that the municipality have its own department, and it was figured out for him, showing where a complete outfit, better and more complete in every way, could be bought and run for a year for almost the same amount the city paid this contractor for his indifferent service, which amount is ₱6,000, and the cost of running the second year would be only half that amount, but he said that no change could be made until next year.

The animals used on the garbage carts are the poorest of their kind. In June an examination was made of them by Dr. Glaisyer, veterinarian, Board of Health, and out of 14 examined 2 were pronounced positive of glanders and the rest suspicious. The two positive ones were immediately ordered killed, which was done in the presence of the owner. These two animals were discharging enough pus from their nostrils every hour to infect every horse in the province, and they were being used daily. The killing of these two animals was followed by a letter of protest to the president, who forwarded it to the governor, who returned it to the provincial board of health for explanation. Evidently the explanation was satisfactory, for nothing more has been heard of it. As there was no Insular or municipal law covering these cases, and as it was desired to make a thorough examination of the remainder of the street-department horses, as well as of all the horses in town, an ordinance similar to the one in force in Manila was placed before the municipal council. A perfect storm of protest arose from the friends of the contractor (who, by the way, is a gentleman with a long "pull"), and the ordinance was bitterly opposed for two weeks on the ground that it gave the board of health too much power. Finally the thing came to a vote and 9 voted in favor and 9 against it, the president casting the deciding vote in favor of its passage. In the meantime a wire had been sent to the central office of the Board of Health for mallein, for it was part of the agreement that before horses were killed for glanders they should react to mallein, and the answer said it would be sent as soon as a fresh supply could be made in the laboratories. A month later, in answer to another request for mallein, the chief veterinarian, Board of Health, said there was none on hand, so this entire work, over which such a hot fight had been waged, came to nothing on account of the lack of mallein. There is no doubt but that there are many cases of glanders in Cebu, and a veterinarian should be sent there to clean the place. The law is there waiting to be applied and the president will assist in every way, if only for selfish motives, for he is the owner of several valuable horses. This constant keeping after the street department had the effect of improving the service, even though glandered horses are being used to pull the carts, but the inability of the board of health to obtain mallein made it more or less of a victory for the contractor, for his glandered animals are still alive.

DEATH AND BIRTH CERTIFICATES.

The registration of death and birth certificates has always been a source of friction between the municipal and health authorities, more from the general idea of opposing everything proposed by the latter than anything else. It was a small matter to secure the adoption of the same system of registration as is in use in Manila, and the president made himself responsible for the accuracy of the records.

LICENSES.

Licenses have heretofore been granted to anybody who had the price to pay for them, without regard to the sanitary condition of the prospective place of business. An ordinance was drafted and proposed to the town authorities which made it obligatory to have the approval of the board of health to every license application before license could be issued. Also in the same ordinance was a clause giving the board of health power to close any place of business at that time running or at any future time if the place was insanitary and the owner refused to make the necessary repairs. This ordinance was passed as drawn in the original and it gives the board of health great power for good, but a larger sanitary organization than Cebu has at present is needed to get the full benefit of the law, though even with the present small force a great deal of good has already resulted.

MARKETS.

Four months ago Cebu had two markets which were entirely inadequate in size and in very bad sanitary condition; to-day there are two new ones which, although not perfect, are excellent markets. The markets are inspected twice daily by the municipal doctor, who sees that no bad meat, fish, or vegetables are for sale. He also issues permits for the killing of all animals. Only old and decrepit animals—that is, draft animals, carabaos, etc.—are supposed to be killed, and permits are given only for animals coming under those heads, but it was discovered that, after the doctor had inspected an old useless animal and had given a permit for killing the same, the owners were substituting a good healthy animal in its place and the same old, useless one was being condemned every day. To stop this the doctor now writes a description of each animal to be killed and passes this description on to Mr. Dexter, who views the killing. Several times people have been caught trying to make a healthy animal fit the description of some old, broken-down one for the killing of which a permit had been given. Although this practice of killing animals fit for breeding or for draft purposes contrary to law No. 637 has been stopped in public, there is no doubt that it is being done in secret and that many good carabaos are being slaughtered every day. This matter has been brought to the notice of the provincial treasurer.

HOSPITALS.

Cebu has two hospitals, one for infectious and contagious diseases and one general. Needless to say, they are of little value. The municipality spends enough money every year on these two hospitals to support one good, first-class institution. Cebu would be an excellent location for a good 50-bed district hospital with an American doctor in charge. Being centrally located, it would be easy of access to the other provinces in that region and civilians of all classes could get good hospital treatment without having to make the long journey to Manila. The municipality has signified its willingness to contribute the money they now spend for their municipal hospitals, which amounts to nearly ₱5,000 yearly, to its support, and the province will give the land, besides supporting a certain number of beds. The remainder of the money necessary for its erection and support should come from Insular funds.

PROVINCIAL PRISON.

The provincial prison is a relic of Spanish days and is wholly inadequate for the number of prisoners it now contains. It is crowded out of all proportion to its air space, and beri-beri is prevalent among both Constabulary and prisoners. Recommendation has been made by Captain Nevill, senior inspector, and the writer, for the repairs necessary to put it in good sanitary condition. These recommendations include the removal of all the Constabulary but the necessary guard and the building of a good hospital.

They were approved by the provincial board and ₱8,500, Philippine currency, have been appropriated for the purpose.

THE ESCOLTA DISTRICT.

The Escolta district was in Spanish days the principal business part of the town, and in it were located Cebu's best buildings. In 1898, during an engagement between the Spanish gunboats in the bay and the insurgents on land, the whole district was destroyed by fire, leaving only the stone foundations and walls of the buildings. After the fire, instead of rebuilding or cleaning out the ruins, squatters were allowed to creep in and erect shacks of any material they could lay their hands on, and these ruins became in time the living places of hundreds of people whose main object in life seemed to be the collection of as much filth as the district would hold.

Three years ago plague broke out in this section and has existed ever since, besides spreading to other localities. Many attempts have been made at different times to get the district cleaned out, but there was so much opposition each time that it was given up. After many conferences with the president on this subject, he was finally induced to issue an order to all the owners of walls and shacks to have them removed within ten days. At the end of the allotted time not a wall or shack had been touched. Knowing that it would be hopeless to do any more talking on this subject, Inspector Dexter, with the permission of the president, was ordered to take the municipal prisoners and begin work at once. With the taking down of each shack and each piece of stone there was a great protest and a consequent interruption in the work, and, although his office was besieged by crowds of crying people, the president stood firm and allowed the people to go on. It took three months to get these shacks and walls out, but one who had seen the place six months ago would hardly recognize it now. As the stone in all these walls was calcined and not suitable for further use for building purposes, the municipality has taken it to use on the roads. The military were also allowed to have much of it. To-day there are only two walls standing, and they are evidences of the only time the president openly opposed the board of health. They are the property of a Chinese mestizo named Veloso, a personal friend of President Rodriguez. Veloso claims the walls can be builded upon and the president apparently believes him. On the other hand, the provincial supervisor says they are not strong enough to be used again in a building. While the public health is really not jeopardized by their being there, still they are not things of beauty and should come down. Knowing that talking would do no good, the writer had an idea that he could get them down without the knowledge of the owner, and that the talking, if any was to be done, could come afterwards. Acting on this idea, Dexter was sent there with instructions to get them down at once and refer everybody to the board of health. The work had no more than started when it was discovered and the fight was on. Finding appeal to the board of health was of no avail, they appealed to the governor of the province, who promptly became interested in something which was none of his business and ordered the work stopped by the president. As the attempt of the board of health to get the walls down was more or less of an arbitrary proceeding, there was nothing else to do but stop work with the hope of finding another way. In the meantime the writer was ordered to Manila, and the walls are still standing.

Next to the building of the leper hospital, the cleaning out of this Escolta district is the most important work done in Cebu by the board of health. It is a large district covering several blocks, and to clean it out took a tremendous amount of patience and persistence. Chief Sanitary Inspector Dexter was personally in charge of the gang of men who did the work, and he deserves great credit.

VACCINATION AND SMALLPOX.

The two vaccinators appointed by the municipality worked steadily, with an average number of sixty vaccinations a day for each man, until the arrival of Dr. Biggar and his corps of Insular vaccinators, but their results were poor, for only about 3 per cent of the total number were successful. Fortunately there have been but few cases of smallpox in the town for the last four months. In the province—that is, outside the town of Cebu—there were reported cases and deaths as follows:

Month.	Cases.	Deaths.
January	348	145
February	426	78
March	253	84
April	148	78
May	118	26
Total	1,293	411

There has been a steady decrease in the number of cases during June, July, and August, due to the presence since March of three Insular vaccinators in the worst-infected towns. The province should have its own corps of vaccinators, one to every 100,000 inhabitants, with one inspector of vaccinations, all under the direct control of the the president of the provincial board of health, who should be responsible for their work. With the exception of the work of vaccinating, there is practically no sanitary work to be done in the province outside of the town of Cebu as the lack of medical men makes municipal health organizations impossible. During the last session of the normal school the writer addressed the teachers of the province on the subject of vaccination in the hope of enlisting their assistance in the matter of each teacher vaccinating his or her own school. The promise of this assistance was given when school should reopen, but the arrival of Dr. Biggar with his own men made it unnecessary to call upon them.

BUBONIC PLAGUE.

Bubonic plague has been endemic in Cebu for the last three years, and, while it has never become epidemic, it has at times been so bad as to cause alarm. In the last four months there have been three cases. The first two occurred within two weeks of each other, while two months elapsed before the third case occurred. There was no traceable connection between any of the cases, as they occurred in different sections of the town. The last case occurred on August 18, the victim being a Moro sailor on a small coasting schooner in the bay, and appeared seven days after the arrival of the schooner in port. All efforts to trace the sources of the individual cases have been fruitless. The gradual improvement in the sanitary condition of the town will probably wipe out the disease, but if dirt and filth get the upper hand there will be an epidemic.

RINDERPEST.

Since January rinderpest has caused the death of nearly 2,000 animals in four towns on the east coast north of Cebu. A party of inoculators under a Board of Health veterinarian was sent to the infected district in June last, but their results were so poor that they were withdrawn. The death rate among the healthy animals inoculated by the simultaneous method was many times higher than the death rate from the disease. Whether the fault was with the method of inoculation or with the serum the writer was unable to determine from the investigation he made at Bogo and Codmon. Whatever the cause, the results were unfortunate, for the disease is still epidemic and there is a focus of infection large enough to infect the whole island.

Under the present régime it is difficult to see where any more permanent sanitary improvements can be made. The work which has been done was made possible by the assistance of President Rodriguez and the fact that it would cost the town practically nothing; rather the town was the gainer by as much as the value of the stone taken from the Escolta district. The improvements now needed badly are the most important and most expensive. They are: A water supply and a sewer system. The former is at present obtained from wells, while the latter consists of a few open drains. To get these things there must be more money in the treasury, and to get more money in the treasury the town must be incorporated, with a charter on lines similar to the Charter of the city of Manila. That, and that only, will be the salvation of the town from a sanitary standpoint. It seems to the writer that the town of Cebu is a bad business organization, and that all the money raised goes for salaries of its officials. With intelligent and honest officials at the head of the municipal government—men who are interested in the welfare of the town and not too much in their personal welfare—Cebu can be made one of the healthiest and prettiest towns in the Philippine Islands. Cebu offers a great field for sanitary work, but it must be directed by an American doctor. The present salary of the president of the provincial board of health is only $1,500, United States currency, per year, and that is too small for an American to work for. If it could be raised to $1,800, an American doctor could be found to take the place.

REPORT OF SPECIAL SANITARY INSPECTION OF THE PROVINCE OF MISAMIS.

By Dr. PAUL C. CLEMENTS, *Medical Inspector.*

Dr. Paul C. Clements, medical inspector, under date of the 12th of January, 1903, reports as follows:

"I have inspected the following towns of the Province of Misamis: Oroquieta, Jimenez, Loculan, Misamis, Cagayan, Iponan, Opol, El Salvador, Alubijid, Agusan, Tagoloan, Balingasag, Lagonlong, Salay, and Talisayan. The towns of Tacloban and Surigao were investigated with regard to building or site for a hospital.

"PROVINCIAL BOARDS OF HEALTH.

"The provincial board of health of Misamis Province as at present organized consists of Dr. Francisco Javier, president; Mr. Eugene Barton, supervisor-treasurer; and Señor de Leon, president of the municipal board of health of Cagayan. The clerical work of this office is well systematized; communications received and copies of communications sent are properly docketed; reports from municipal boards are in accessible form; and the circulars, etc., of the Insular Board of Health are promptly communicated to the municipal boards—in a Visayan translation, when necessary. The local regulations of the provincial board, as formulated for the approval of the Commissioner, appear to be well adapted to the existing conditions of the towns of this province. The reports received from municipal boards include transcripts of the register of births, deaths, and marriages, and of the list of persons vaccinated, which are forwarded monthly; contagious diseases, forwarded daily from points in telegraphic communication, and as opportunity serves from those towns not enjoying such facilities, and such special reports as are called for. These reports are received from all except two municipalities with such regularity and promptness as the conditions mentioned below will allow.

"One of these delinquent municipalities, Gingoog, has been united to Talisayan under the act reducing the number of municipalities, and the other, Initao, is of so little importance commercially that it is seldom visited by steamers, and its only connection with the remainder of the province is by a long stretch of very bad road. Pending the assignment of Insular vaccinators to this province, and on account of the presence of smallpox in several of the pueblos, a number of temporary appointments as vaccinators were made by the provincial board of health. One of these provincial vaccinators spent the first half of November in Oroquieta, vaccinating during that time all or nearly all of the children, after which he went into the next town, Jimenez, but did no work there on account of a fracture of the bones of the forearm, this injury being received by being thrown from a horse. Another worked in Lagonlong during the greater part of November and in Talisayan up to the time of my visit there, January 1 to 4.

A third was encountered in Balingasag December 13, where he had been at work for several weeks. Of the vaccinations in Oroquieta very few were successful, and the same is true with regard to the early work in the other towns. It is attributed to the fact that the virus used had been sent by mail and was exposed in transmission to too high a temperature. Fresh virus, received later, gave good results.

"MUNICIPAL BOARDS OF HEALTH.

"*Oroquieta.*—No organized board in this town. Susano Neri, locally known as the 'mediquillo,' receives ₱25 per month for attendance on the poor and municipal police. His knowledge is limited to that acquired during a service of less than two years as attendant in a Spanish military hospital. Nothing has been done here except to clean up the streets and yards during the cholera epidemic. The reports to the provincial board are attended to by the municipal secretary, who also keeps up the register of births, deaths, etc., in moderately good shape.

"*Jimenez.*—Juan Galindo, a practicante with only local experience, is acting as president of a local board of health. The registers here are likewise kept by the municipal secretary, but the death register is incomplete and shows only a portion of the death records forwarded to the provincial office, which were seen subsequently. No record of anything accomplished by this board.

"*Loculan.*—Board of health consists of Cayetano Saarenes, a young man without training but of good intelligence, and the councilmen. The municipal council of this town, previous to the invasion of cholera, adopted ordinances providing for quarantine against infected points and for the cleaning of streets and yards, and during the epidemic directed the disinfection and burial of cholera excreta and the boiling of food and water; notwithstanding which, this town shows the highest percentage of deaths from cholera which was encountered in the entire province. The registers here are well kept. This town is now incorporated with Misamis.

"*Misamis.*—Board of health consisted of Mariano Wando, practicante, who claims four years' study in Manila; Mr. Gunn, school-teacher; and Palacio Calalong, a councilman. Mr. Gunn has been withdrawn since the date of my visit. This town has some ordinances regarding general cleanliness and quarantine, but little effort is made to enforce them, except during epidemic seasons. The practicante puts in a day or two occasionally in sanitary inspection work, but devotes the greater part of his time to the poor and vaccination. He has practiced arm-to-arm vaccination steadily during the past few months.

"*Cagayan.*—The president of the municipal board of health of Cagayan is Señor de Leon, who has a 'titulo' as 'cirujano ministrante.' He likewise acts as a member of the provincial board. The regulations are enforced here to a greater degree than elsewhere in the province, due to the personal supervision of Dr. Javier. The municipalities of Iponan, Opol, El Salvador, and Alubijid have been incorporated with Cagayan.

"*Iponan.*—The municipal board here consisted of Lope Abrera, president; the municipal secretary; a councilman, and a native school-teacher. The records and reports are in fair shape. Now incorporated with Cagayan.

"*Opol.*—This town has a president of board of health, who does not speak Spanish, and whose name I failed to note. The records are in fair shape and included lists of 1,866 persons vaccinated during the present year, of which rather more than half are estimated to have been successfully vaccinated. Now incorporated with Cagayan.

"*El Salvador.*—This town is now incorporated with Cagayan. The records are in better shape than in any other town in the province, with the exception of

Cagayan, and include about 1,300 vaccinations, mostly children, for 1903; estimated 753 successful.

"*Alubijid.*—No board of health. Registers attended to by municipal secretary. List of deaths apparently complete, but no attempt to assign cause of death. Now incorporated with Cagayan.

"*Agusan.*—Records not seen on account of absence of officials in Tagoloan, with which town Agusan is now incorporated, my visit falling on election day.

"*Tagoloan.*—The president of the municipal board of health is Melecio Alquitela, who served two years and nine months as attendant in the Spanish military hospital at Iligan. He has good intelligence and a fair understanding of his duties. Has carried on vaccination work since June 20, 1903; 773 vaccinations up to date of inspection. Some inspection work has been done and one or two prosecutions for violation of sanitary regulations which have been adopted by the municipal council.

"*Balingasag.*—The president of the board of health here is Sancho Babiera, who has a 'titulo,' from Santo Tomas, as 'cirujano ministrante.' He has served in this capacity about six months. The regulations of the Board of Health have been adopted by the municipality and seven convictions have been secured for violations. Vaccination was begun in September, but about 1,000 vaccinations in this month and October were without effect. In November and December, 1903, the work was continued with fresh virus. Number vaccinated in these two months, 990; successfully, 456. Jasan, Lagonlong, and Salay have been incorporated with this town.

"*Lagonlong.*—This town has been incorporated with Balingasag, and the records had been sent to that place before I visited Lagonlong. There has been a temporary organization here, but I was unable to learn that anything had been accomplished.

"*Salay.*—Now incorporated with Balingasag. In addition to keeping the required records and making copies for transmission to Cagayan the work accomplished consists principally of about 200 vaccinations.

"*Talisayan.*—The vice-president has looked after sanitary matters here. Not much is being done, although the records are well kept. Local vaccinations, 336, with only 8 successful. Provincial vaccinator arrived November 23, 1903, and up to December 31, 1903, had vaccinated 827, with 403 successful results.

"Of the above-mentioned towns only Oroquieta and Jimenez remain unaffected by the fusion of municipalities which went into effect on January 1, so that Misamis, Cagayan, Tagoloan, Balingasag, and Talisayan, and likewise Mambajao, are now without even temporary boards of health, on account of the effect of this act, which will also affect future sanitary work on account of the large areas now embraced in single municipalities. Thus Cagayan now has as barrios four towns along the coast to the west, the last of which is 15 miles from the seat of the municipal organization. Balingasag now includes Salay, 10 miles to the north, and Jasan, about 15 miles to the south; Gingoog, which has been added to Talisayan, is distant a six-hour ride, and parts of Camiguin Island, all of which is now included in the municipality of Mambajao, are almost a day's ride from that place. In these circumstances it is practically certain that the towns which have been converted into barrios will receive even less attention than formerly, although, on the other hand, in most cases they will be brought under the jurisdiction of sanitary officers whose knowledge is greater than that of the men whose offices have just been vacated. It is desired, however, that some arrangement be effected by which the municipal board of health will have a representative in each barrio, and this can probably be best done by causing the teniente of each barrio to act as sanitary inspector. It should also be made the duty of the president of the board of health to visit each barrio at least once a month.

"One of the principal factors in hampering the work of the provincial board of health is the lack of regular communications. Thus, on the Misamis side of the province the only communication with Cagayan is by the Coast Guard service, twice a month, and the points at which these boats do not touch are very badly off indeed. The relations of this portion of the province are much closer with Cebu than with Cagayan. It is due to these conditions that the regular monthly reports are usually from four to six weeks in arrears.

"The data afforded by these reports are vitiated to a considerable extent by the lack of diagnostic ability from which even the best of the practicantes suffer and by the prevailing habit of depending upon the padre to report events which it should be the duty of the head of the family to report. In some towns births are only registered when the baptism is performed, and in one, Jimenez, the entire vital statistics are taken bodily from the parish records.

"During this tour I observed the general need of blank forms for vaccination register, for register for contagious diseases; of report forms for contagious diseases, for vaccinations, as well as the regular monthly reports of vital statistics and vaccination certificates. These reports forms should be in the shape of loose sheets ruled and printed to correspond to a page of the register, and the reports rendered in the form of transcripts of the various registers.

"NOMINATIONS FOR PRESIDENTS OF MUNICIPAL BOARDS OF HEALTH.

"In every case I have found the temporary appointments made by the provincial boards to represent the best available material. With the exception of the Army contract surgeon, the president of the provincial board of health is the only graduate physician in the province, and only four towns can boast a practicante who deserves the title. I submit below a list of those I would recommend for appointment, with an efficiency report on those who have already served in this capacity, based upon training, service, and general intelligence. On account of the operation of the fusion act, the remaining municipalities are with one exception entirely without sanitary officials, and the appointments should therefore be made at the earliest practicable date.

Town.	Name.	Title.	Efficiency.	Remarks.
Cagayan	Señor de Leon	Practicante (diploma).	70	President municipal board of health, Cagayan, since organization.
Misamis	Señor M. Wando	Practicante (no diploma).	70	President board of health since organization.
Jimenez	Señor J. Galindo	do	50	Served since organization.
Oroquieta	Señor S. Neri	do	50	
Tagoloan	Señor M. Alquitela	do	60	Served under former municipality.
Balingasag	Señor S. Babiera	do	70	Six months' service under former municipality.
Talisayan	Señor B. Pelaez	Practicante		College education in Manila.

"With regard to the town of Mambajao, I would recommend that the former president of the board of health of that place be reappointed for the new municipality. I did not reach that town on account of heavy weather and have not his name, but he has a diploma as 'cirujano ministrante' and is highly spoken of in Cagayan. I am unable to make recommendations with regard to appointments in Initao and Langaran, except that Dr. Javier's recommendations be received.

"HYGIENE AND SANITARY CONDITION OF TOWNS.

"*Customs and habits of the people in regard to sanitation.*—Along the coast of the province runs a strip of flat land from 3 to 15 feet above the tide level and varying from one-half to 3 miles in width, backed by abrupt hills rising into the interior. The hills are only inhabitated by a sparse population of 'Montescos,' whose villages rarely contain more than six or eight huts. The Visayan population live entirely upon the beach, except in the towns of Cagayan and Iponan, which are on the banks of small rivers and are inland 3 and 1½ miles, respectively. With the exception of Tudela, a barrio of Misamis; Abubijid and Opol, barrios of Cagayan, and the larger part of the town of Jimenez, which are located on small, irregular hills, all of these towns are built on flat land and are without drainage. During the rains much of the flat belt is almost marshy in character and it rarely becomes absolutely dry. There are rice paddies near every barrio, and stagnant pools abound.

"*Water supply.*—Only two or three of the towns visited depend upon wells—Opol almost entirely, and Jimenez and Abubijid to a considerable extent. Nearly all the towns are located at the mouths of small streams, which furnish good water on account of the absence of sources of pollution in the hills. Balingasag has a water main laid from a mountain stream and public fountains which were constructed during the Spanish rule, but the system is not in operation for want of some repairs said to require but little time or trouble. The provincial board of health has issued regulations directing that laundering and all other domestic operations tending to pollute the water of these streams be performed in the part below the towns and that water for domestic purposes be obtained above the town, and these regulations are generally observed.

"*Disposal of excreta.*—Shallow earth pits are the only means used.

"*Habits.*—The general lack of cleanliness and the custom of eating from a common dish and taking the food with the fingers appear most objectionable from a sanitary standpoint. Sick persons are usually visited by all of the neighbors, and this is a principal factor in spreading contagious diseases.

"*Subsistence.*—The diet list includes sea foods, chickens, rice, bananas, camotes, and, occasionally, maize and some native fruits. With so limited a list and the usual lack of thorough cooking small power of resistance to disease is to be expected.

"PREVAILING DISEASES.

"*Malaria.*—The proportion of the ordinary death rate, aside from the cholera epidemic, attributed to calentura, typhoid fever, and malaria varies from 50 to 90 per cent, and I was told in every town that nearly all existing sickness was malarial in character. It was noticeable that in proportion to the intelligence of the officials the deaths attributed to typhoid fever increased.

"*Beri-beri.*—No town is absolutely free from this disease, and the 76 deaths during 1903, which were found attributed to this cause in towns representing about one-half the province, would indicate the probable existence of 500 cases in the provinces.

"*Dysentery.*—During the year 1903 deaths from this disease were reported as follows:

"Oroquieta	14
"Iponan	5
"Opol	4
"Cagayan	14
"Santa Ana	11
"Tagoloan	1

"Occasional cases occur in all towns.

"*Tuberculosis.*—The only noticeable death rate from this disease was in Cagayan, 22; El Salvador, 10.

"Most towns had from three to six cases recorded. These are believed to be far below the true figures, as some deaths from this disease are undoubtedly attributed to calentura.

"*Scarlatina.*—Entered as a cause of death only in Cagayan, 20 cases during 1903, and in Balingasag, 17 cases. A few cases are still existing in both towns.

"DEATH RATE.

"The following statistical table, covering ten towns of this province for year from July 1, 1902, to June 30, 1903, is believed to be fairly representative of the entire province. This period covers practically the entire cholera epidemic:

Town.	Deaths per 1,000.	
	Cholera.	Other diseases.
Cagayan	67	40
Opol	50	28
El Salvador	29	27
Loculan	78	27
Santa Ana	41	28
Tagoloan	27	14
Jasan	23	33
Balingasag	42	38
Salay	21	9
Talisayan	38	14
Average	42	26

"EPIDEMICS.

"*Cholera.*—The total number of deaths from this epidemic which I was able to enumerate is, in round numbers, 2,700, which does not include Camiguin Island and six small towns on the mainland, and which probably falls somewhat short of the actual number in the towns included. Few data are available for a detailed history of the epidemic, except the entries in the death register. These show Cagayan and Balingasag to have been invaded almost simultaneously in the latter part of September, 1902, the infection probably coming from Cebu, as the trade relations of the province are entirely with that port. Talisayan, invaded October 10, was likewise infected from Cebu either direct or through Mambajao. From Cagayan the infection spread to Iponan on October 3 and to Opol and Salvador on the 14th, and from Salvador to Abubijid. Santa Ana and Lagoloan only became infected on the 11th and 15th of November, respectively. Salay, invaded October 23, and Jasan, October 28, were infected from Balingasag. In all of these towns the epidemic reached its height in about two weeks and began to decline at the end of a month, disappearing from Opol, Santa Ana, and Lagoloan the last of December; from Jasan during January, from El Salvador, Salay, and Talisayan during February, and from Cagayan and Balingasag in March. It reappeared in Balingasag and Salay in May, with sporadic cases in one or two other towns. All these towns were revisited in June, cases occurring in small numbers for three to ten weeks. With the exception of five cases in Salay in September and October this portion of the province has been free from cholera since August. The part of the province including Oroquieta, Misamis, and adjoining towns was not infected until the early part of January, 1903—Oroquieta first and the other towns in quick succession. Here again the infection came from Cebu. It was most violent in

January and February and lingered in Oroquieta until May, in Jimenez until June, and in Loculan and Misamis into July. No secondary outbreak has occurred in these towns to the present date.

"Such precautionary measures as were taken seem to have had little success in preventing the entrance of the disease or in getting rid of it when introduced.

"*Smallpox.*—Smallpox appeared in Talisayan in June, 1903. Death register shows from June to November, inclusive, 271 deaths, and estimated recoveries are about equal. It has now disappeared, except for a few cases lingering in outlying barrios. From this place it spread to Salay, in September, in which place there had been forty deaths to the last of December, with a few cases still existing. From Salay the infection spread to Lagonlong, where the data were not available, and to Balingasag, where, owing to active vaccination, it did not gain a firm hold; two deaths during December at this place and a few convalescent cases, but no new cases at the time of visit. San Vicente, a barrio of Oroquieta, was invaded September 6, the infection having come from Bohol, according to local report, and entering Oroquieta proper October 26. Up to the date of my visit, December 10, there had been about 80 cases, with 12 deaths, and 40 cases estimated existing on that date. From this place the disease reached Jimenez, where there were 9 cases, and to Tudela, a barrio of Loculong (now Misamis), 5 cases at the date of my visit. Loculong proper and Misamis had not yet been infected, though the transfer of a detachment of Constabulary from Oroquieta to that place on December 12 renders its introduction there possible. Telegraphic report of the conditions in Oroquieta was made December 14.

"*Animal diseases.*—None was encountered, except two sick carabaos, in Jimenez, believed to be suffering with rinderpest.

"Large herds of cattle and carabaos formerly existed in this province, but were almost exterminated by rinderpest in 1902. Observation and inquiry lead me to believe that the number of carabaos now in the province does not exceed 500, and cattle are equally scarce.

"HOSPITAL SITES.

"*Cagayan.*—The town will give a site for the erection of a hospital. Of existing buildings, the only ones suitable and of sufficient size are:

"(1) The present military hospital, a two-story building of strong materials, with 20 beds. By using the lower floor, at present occupied by commissary and quartermaster stores, for office, pharmacy, etc., this building could be made to contain thirty-five beds. It is thought that the construction of a post at this place will render this building available within three or four months.

"(2) A building belonging to the municipality of Cagayan, at present occupied as barracks by a company of Scouts, will be available about the same time, and could probably be had, rent free, for a limited time. Rent of house first mentioned should be about ₱60.

"*Surigao.*—The only suitable building in this town is at present occupied as Constabulary headquarters, with a rent contract covering 1904. The municipality will give a site. The building mentioned should be rented for ₱50 per month.

"*Tacloban.*—I was in Tacloban only a few hours and was unable to find a suitable building.

"During the first half year or year of the existence of hospitals in these places the full capacity of 50 beds would probably not be needed and a smaller building could be utilized.

"I would urge that no definite announcement of intention to establish a hospital in any of these places be made until an option is secured on the building selected."

SPECIAL REPORT ON PAMPANGA PROVINCE.

By Dr. F. W. DUDLEY, *President Provincial Board of Health of Pampanga.*

Dr. F. W. Dudley, president of the provincial board of health of Pampanga Province, submits the following report, under date of 9th of August, 1904:

"The provincial board of health of Pampanga held during the fiscal year ended June 30, 1904, for which period this report is rendered, twenty-one regular and fourteen special meetings, at which, in addition to the ordinary routine business, the following subjects were considered:

"(1) Recommended increase of salaries for qualified persons holding positions as presidents of municipal boards of health in cases where their work was satisfactory and the municipal funds would warrant it.

"Upon the presentation of estimates by some of the towns for increase of salaries of presidents of boards of health, the question came up as to whether subsection (*g*) of section 22 of the Municipal Code did not apply to presidents of municipal boards of health. This office asked for an opinion and the Attorney-General for the Philippine Islands ruled that the section quoted in the foregoing did not apply, as these positions were not created under the Municipal Code but by Act No. 308, and that, while created for municipal purposes, they are not operated under or subject to municipal control.

"The following increases were made in salaries of presidents of municipal boards of health during the past fiscal year:

Town.	Former salary.	Present salary.	Increase.
Salaries increased:			
Angeles	₱40.00	₱60.00	₱20.00
Arayat	40.00	60.00	20.00
Bacolor	25.00	66.66	41.66
Candaba	25.00	50.00	25.00
Guagua	40.00	58.33	18.33
Macabebe	33.33	50.00	16.67
Magalang	25.00	40.00	15.00
Porac	30.00	40.00	10.00
San Fernando	50.00	66.66	16.66
Salaries not increased:			
Apalit	20.00	20.00	
Floridablanca	30.00	30.00	
Bubao	41.66	41.66	
Mexico	33.33	33.33	
Santa Rita	30.00	30.00	
San Luis	30.00	30.00	
Santo Tomas	40.00	40.00	
Total	583.32	716.64	183.32

"Owing to increase in salary it has been possible to secure better-qualified persons as presidents of municipal boards of health, as the table below shows:

Qualifications.	June 30, 1903.	Ap- pointed.	Total.	Re- signed.	Lost by fusion.	Resignation re- quested.	Total loss.
Licentiates in medicine	3	3	6		1		1
Cirujanos ministrantes	2	1	3	1			1
Undergraduates	2	5	7		1	1	2
Ex-sanitary inspectors	2		2		1		1
Practical experience	8	1	9	3	2	2	7
Total	17	10	27	4	5	3	12

Remaining June 30, 1904, 15.

"(2) The number of towns without presidents of municipal boards of health June 30, 1903, before fusion, when there were 23 towns in the province, was 6. June 30, 1904, there remained but 2 towns without presidents of boards of health, and in one of these, Mexico, a licentiate of medicine will be shortly secured to fill the vacancy; and in the other, Mabalacat, a provisional board of health has been organized with the municipal president as acting president.

"Five municipal boards of health and one provisional board were organized during the year. Licentiates of medicine holding such appointments were increased from 3 to 5, undergraduates by 3, and 'persons of practical experience only' were reduced from 8 to 2.

"There were 24 towns in the province on June 30, 1903, but owing to fusion of towns there remained but 17 on June 30, 1904. The Attorney-General rendered a decision to the effect that when two towns were fused, both having presidents of boards of health, both positions became vacant. Owing to the fusion five presidents of municipal boards of health lost their positions. Three of these were reappointed, the remaining two not being qualified for appointment under the existing law.

"(3) It was recommended that artesian wells be bored in certain towns situated upon the estuaries of Manila Bay, where it is impossible for people to obtain potable water without going a great distance. The result is that the poor people are obliged to drink the impure water at hand.

"(4) A resolution was passed June 5, 1903, requesting the Manila Railway Company, Limited, to repair and maintain in a sanitary condition all water-closets located at stations on their line in this province. On January 30, 1904, no notice having been taken by the company, a copy of the resolution was mailed to the Commissioner of Public Health, with a statement of the facts in the case. Up to the present writing no improvements have been made by the company. All the closets of the company in this province are in a filthy and dilapidated condition.

"(5) A resolution was passed June 24, 1904, recommending for adoption by all towns in the Province of Pampanga a sanitary ordinance prepared by the president of the provincial board of health. The object of this ordinance was not to take the place of local legislation, but rather to serve as a guide to secure, when existing conditions permitted, uniform legislation throughout the province in sanitary matters. The ordinance was approved by the members of the provincial board individually before being sent to the presidents of municipal boards of health. The ordinance has been adopted by nine towns, and in three of these slight modifications have been made by the local governments. The remaining eight towns have not yet been heard from, but will most likely adopt it.

"(6) It was recommended that the different pueblos purchase the necessary carts and carabaos and employ a sufficient number of men for the policing of same. Most of the towns are now so equipped, and the results are gratifying.

"(7) A recommendation was made that each town purchase the necessary medicines for treatment of the sick poor and that the president of the municipal board of health hold a clinic for that purpose.

"Following is a list of the amounts expended by each town for medicines and surgical dressings for the poor, and disinfectants, during the year ended June 30, 1904:

Town.	Amount.	Town.	Amount.
Angeles	₱135	Mexico	55
Apalit	30	Porac	50
Arayat	50	San Fernando	40
Bacolor	180	San Luis	40
Candaba	50	Santa Rita	30
Guagua	105	Santo Tomas	100
Lubao	75		
Macabebe	60	Total	1,020
Magalang	20		

The above-noted expenses include disinfecting pumps for towns which have requisitioned for same.

"The following disinfectants were issued by the provincial government to the different towns in the province requiring them during the fiscal year ended June 30, 1904:

"Carbolic acid ....liters.... 100
"Mercuric chloride ....kilograms.... 1. 103
"Chloride of lime....................do....... 10

"(8) Fourteen of the 17 towns in the province, on the recommendation of this board, have put in estimates for money for the purchase of disinfecting pumps for use in case of the appearance of contagious disease. The estimates have been approved and the pumps will be purchased for the towns by the provincial supervisor, who will also buy a lot of medicines and disinfectants for towns which have recently requisitioned for the same.

"(9) On March 26, 1903, this board sent out a circular letter to all presidents of municipal boards of health requesting that they see that Act No. 597, regulating the practice of pharmacy, be strictly complied with, and if upon inspection it was found that the act was being violated, that evidence be secured and the provincial board of health be notified. All the drug stores and tiendas selling medicine were inspected by the president of the provincial board of health, and as a result of the investigation nine were found to be running without a licensed person in attendance. In some of these stores certificates of registered persons were displayed, but the persons to whom the certificates were issued were not present but were exercising their profession in Manila or elsewhere.

"It was quite clearly demonstrated that these certificates were, in most instances, rented to the owners of the drug stores in which they were found for a monthly fee, and, in others, for an interest in the business.

"Three of these nine pharmacies secured licensed dispensers, the remaining six being closed. Two persisted in conducting their business contrary to Act No. 597 after repeated warning, so charges were placed against them and their cases are now in the hands of the provincial fiscal.

"(10) Circular letter No. 5, dated November 11, 1903, was sent out to all presidents of the municipal boards of health requesting a strict enforcement of Act No. 310, regulating the practice of medicine.

"There are great numbers of persons practicing medicine in the province under various titles, such as herbolarios, practicantes, curanderos, etc. Their knowledge of medicine is, as a rule, very crude, and of surgery they know absolutely nothing, yet they do not fear to assume the responsibility of the most severe case of either without consultation. Many of them work under direction of licentiates of medicine, who protect them. It is very difficult to secure sufficient evidence to obtain a conviction, as the people whom they treat (the vast majority of the population) will not aid in their prosecution, and the question of whether or not they receive fees for their services is an open one.

"With one exception the president of the provincial board of health has received no assistance from the medical profession in the prosecution of this class of practitioners, and this exception can hardly be noted as such, as the person referred to was an undergraduate of medicine.

"The practicante and his class will most likely exist until the mass of the people become sufficiently educated to enable them to distinguish between an educated and an uneducated physician.

"Charges have been preferred against three of the foregoing class of practitioners, and their cases are now in the hands of the provincial fiscal.

"(11) On the recommendation of this board a hospital of bamboo and nipa has been erected in the provincial jail for the treatment of prisoners. It consists of a dispensary, operating room, and a ward with a capacity of 8 beds. The hospital is sufficiently supplied with medicines and equipped with instruments to treat ordinary cases.

"(12) The general sanitary condition of towns and market places therein has greatly improved during the past year, but much remains to be done in the way of the construction of proper buildings, which the municipalities are too poor to undertake at the present time.

"(13) It was recommended that the town of Arayat construct a pipe line from the base of Mount Arayat into the pueblo for the purpose of supplying the municipality with water for drinking and other purposes. There is a flowing spring at the foot of the mountain capable of supplying a town much larger than Arayat, and the elevation is sufficient to carry the water much higher than any house in the pueblo. Some power could also be secured from a stream which finds its source in numerous springs on the mountain. The distance from the spring to the town is about 1 mile. The water is about 1 mile. The water is excellent. Lack of funds prevents any action being taken in the matter at present.

"(14) The provincial board of health of Pampanga desires that one of the proposed provincial hospitals be located at San Fernando, owing to its central location, and believes that such a hospital located at San Fernando would prove serviceable to Bataan, Bulacan, Tarlac, Pangasinan, and Nueva Ecija Provinces, for reasons stated to the Civil Commission by the citizens of this province in a petition to that body requesting the location of one of the provincial hospitals in Pampanga. A copy of this document was furnished the Commissioner of Public Health for his information.

"Buildings can be secured which will serve well for all temporary needs.

"Many poor people die annually for the want of medical and surgical treatment, as it is impossible to render such in their homes. A hospital of 25 beds could be filled at once with surgical cases amenable to treatment from Pampanga Province alone.

"(15) Two autopsies were performed during the year by presidents of municipal boards of health and two by the president of the provincial board of health.

"On the recommendation of the president of the provincial board of health a complete set of autopsy instruments has been ordered by the provincial board.

"(16) Actual and necessary expenses for carromata and banca hire, etc., are allowed presidents of municipal boards of health by the provincial treasurer when traveling on official business in barrios of their respective towns and on official trips to the provincial capital. This small but necessary expenditure has increased the efficiency of the service very much.

"(17) The last case of cholera occurred in the town of Porac on January 26, 1904. It will be remembered that the first case of cholera appeared in Pampanga, in the town of San Simon, on April 6, 1902. The total cases and deaths reported for the epidemic was as follows:

Period.	Cases.	Deaths.	Mortality.
Apr. 6, 1902, to June 30, 1903	4,107	2,811	68.44
June 30, 1903, to June 30, 1904	550	434	81.88
Total	4,657	3,245	69.68

"(18) The following figures show the extent of smallpox in the province:

Period.	Cases.	Deaths.	Mortality.
Oct. 1, 1902, to June 30, 1903	(1)	228	(1)
June 30, 1903, to June 30, 1904	739	336	45.45
Total	----------	564	----------

(1) Not known.

"Smallpox was epidemic in Santo Tomas and Minalin, a barrio of Santo Tomas, during the months of October, November, and December, 1903, and January, February, March, April, and May, 1904. There were 198 deaths in this town from the disease. Until recently Minalin and Santo Tomas were separate pueblos and neither had a board of health, being too poor to pay presidents of such boards. They were fused into one town with the municipal government at Santo Tomas, in January, 1904. A president was appointed and he reported for duty in Santo Tomas March 11, 1904, organized a health board, and began vaccinating. Two public vaccinators were ordered there to assist and reported for duty March 12, 1904.

"Owing to the fact that very little vaccination had ever been done in this district the people in the barrios about Minalin, where the disease was most severe, objected to vaccination. Although the vaccinators were accompanied by policemen and often by the municipal secretary, who tried to explain to them the necessity for vaccination, women would take their children and flee to the fields, often jumping from the windows of theirs houses, if taken by surprise. By the end of June, 1904, the disease had disappeared.

Record of vaccinations from October 1, 1902, to June 30, 1903.

By whom vaccinated.	Positive.	Negative.	Total.	Per cent positive.
By presidents of municipal boards of health	10,403	6,971	17,374	59.87
By provincial public vaccinators	7,647	1,184	8,831	86.36
Total	18,050	8,155	26,205	68.88

Vaccine virus received and issued from October 1, 1902, to June 30, 1903.

	Units.
Received from Laboratory, Manila	29,900
Issued to presidents of municipal boards of health	18,600
Issued to provincial public vaccinators	10,500
Issued to private vaccinators	300
Broken in transit	500
Total	29,900

Record of vaccinations from June 30, 1903, to June 30, 1904.

By whom vaccinated.	Positive.	Negative.	Total.	Per cent positive.
By presidents of municipal boards of health	16,617	10,275	26,892	61.75
By Insular public vaccinators	6,215	13,738	19,953	31.14
Total	22,832	24,013	46,845	48.73

Vaccine virus received and issued from June 30, 1903, to June 30, 1904.

	Units.
Received from Laboratory, Manila	53,700
Issued to presidents of municipal boards of health	29,100
Issued to Insular public vaccinators	21,700
Issued to private vaccinators	200
Broken in transit	200
On hand	2,500
Total	53,700

Record of vaccinations by provincial board of health since its organization.

Period.	Positive.	Negative.	Total.	Per cent positive.
From Oct. 1, 1902, to June 30, 1903	18,050	8,155	26,205	68.88
From June 30, 1903, to June 30, 1904	22,832	24,013	46,845	48.73
Total	40,882	32,168	73,050	55.96

Vaccine virus received and issued since organization of board.

	Units.
Received for fiscal year ended—	
June 30, 1903	29,900
June 30, 1904	53,700
Total	83,600
Issued for fiscal year ended June 30, 1903	29,400
Issued for fiscal year ended June 30, 1904	51,000
Total virus issued	80,400
Broken fiscal year ended—	
June 30, 1903	500
June 30, 1904	200
Remaining on hand June 30, 1904	2,500
Total	83,600

"The entire work done by provincial public vaccinators (two men) from October 1, 1902, to June 30, 1903, amounted to two hundred and seventy-one working days for one man. There were vaccinated by these public vaccinators 8,831 persons, or an average of 33.07 per man per day for each day actually employed, with a positive percentage of 86.50.

"The entire work performed by Insular public vaccinators (four men) from January 11 to June 27, 1904, amounted to six hundred and seventy-six working days for one man. There were vaccinated by these public vaccinators 19,953 persons, or an average of 29.51 per man per day for each day actually employed, with a positive percentage of 31.14.

"Smallpox appeared in Bacolor on February 1, 1904, and the last case was noted on May 9, 1904. There were but 35 cases and 7 deaths. Fearing an epidemic two provincial sanitary inspectors were temporarily employed. These two men were engaged in vaccinating from March 31 to April 5, 1904, making the entire work performed amount to seventy-two days for one man. There were vaccinated by these provincial inspectors 3,078 persons, or an average of 42.75 per man per day for each day actually employed, with a positive percentage of 82.09. As these two men worked under direction of the president of the municipal board of health of Bacolor and were employed as emergency provincial sanitary inspectors, the results of their labors were included under "Vaccinated by presidents of municipal boards of health," in the foregoing annual statistics.

"It will be noted in the foregoing that, in both instances, provincial vaccinators vaccinated more persons than Insular vaccinators, with over double the per cent of positives. In this connection attention is invited to the positive results obtained by presidents of municipal boards of health.

"The reason the Insular vaccinators vaccinated fewer persons was because they were not of this province and were unable to speak the local dialect. They were therefore unable to explain their work to the people and lost much time in gaining their confidence. The low percentage of positives is attributed to careless inspection.

"Of the four Insular vaccinators working in this province during the latter half of the fiscal year just passed, not one of them was able to properly render their accounts for salary and traveling expenses, thus putting considerable extra work on this office, which is inadequately supplied with clerical assistance.

"*Leprosy.*

	Cases.
"Reported immediately after organization of the provincial "board of health	13
"Reported during the fiscal year ended June 30, 1903	3
"Reported during the fiscal year ended June 30, 1904	7
"Total cases reported since organization of board	23
"Deaths reported during year ended June 30, 1904	5
"Cases remaining June 30, 1904	18

"The majority of towns in the provinces having leprosy cases desire that they be isolated in a government institution, and eagerly await the completion of the proposed leper colony.

"INSANE.

"There were on June 30, 1904, 66 insane persons in the province, classified as follows:

Status.	Males.	Females.
Widows		4
Married	7	12
Single	24	19
Total	31	35

"Of these 3 are violent and 63 are not violent. All are cared for by relatives, none being charges upon the municipalities. There are 36 without financial resources sufficient for support and 30 with sufficient financial resources for maintenance.

"BIRTHS AND DEATHS.

"The following comparative table of births and deaths is for the fiscal years ended June 30, 1903, and June 30, 1904, respectively. The provincial board of health having been organized on October 1, 1902, there are no data for the months of July, August, and September of the fiscal year ended June 30, 1903:

Statement of births and deaths.

Month.	Births.				Deaths.			
	1902-3.		1903-4.		1902-3.		1903-4.	
	Number.	Annual birth-rate per 1,000 per month.	Number.	Annual birth-rate per 1,000 per month.	Number.	Annual death rate per 1,000 per month.	Number	Annual death rate per 1,000 per month.
July	----------	----------	1,137	60.82	----------	----------	772	40.95
August	----------	----------	1,018	64.01	----------	----------	585	31.08
September	----------	----------	902	47.85	----------	----------	547	29.02
October	690	38.26	857	44.63	522	28.94	627	32.66
November	697	38.88	890	47.90	739	40.99	851	46.24
December	690	38.26	998	51.98	975	54.08	723	37.66
January	826	46	1,044	54.88	857	47.54	615	31.51
February	697	38.82	995	55.40	711	39.48	508	28.28
March	708	39.43	981	51.10	631	35	554	28.85
April	834	44.24	943	50.75	667	35.38	589	31.70
May	1,106	58.66	1,000	52.09	895	47.47	622	33.39
June	1,089	57.76	822	44.24	774	41.23	640	34.44
Total	7,337	44.48	11,587	51.20	6,771	41.12	7,633	33.81

Principal causes of deaths in Pampanga Province for the fiscal year ended June 30, 1904.

Cause.	Total deaths.	Cause.	Total deaths.
Convulsions of children	2,026	Unspecified or ill-defined causes of death	108
Intermittent fever and malarial cachexia	1,131	Malarial cachexia	101
Tuberculosis of lungs	799	Simple meningitis	86
Variola	336	Acute bronchitis	77
Senile debility	492	Chronic bronchitis	82
Dysentery	226	Recurrent fever	72
Typhoid fever	168	Total classified diseases	6,070
Diarrhea and enteritis	136	Other causes	1,565
Eclampsia, nonpuerperal	128	Grand total	7,635
Other special diseases of early infancy	107		

"DISEASES OF ANIMALS AND POULTRY FOR FISCAL YEAR ENDED JUNE 30, 1904.

"Carabaos to the extent of 590 were reported as having died from rinderpest and 7 cattle from the same disease. Six carabaos died from foot-and-mouth disease. Twenty-three horses died from glanders and 4 from surra. There were 2,377 deaths among swine; the diagnosis is not known, but was most likely hog cholera. There were recorded 5,546 deaths under the heading of poultry; diagnosis of cases were not made but it is thought the disease was, in the vast majority of cases, hemorrhagic septicemia. With few exceptions, cases recorded under poultry were chickens.

"(19) This board requested of the Commissioner of Public Health by telegraph on March 14, 1904, and again on June 17, 1904, that a veterinarian be sent to this province for the purpose of inoculating carabaos against rinderpest, and the promise was made that the request would be granted as soon as men were available.

"All the towns in the province are anxious to have their carabaos immunized, save Macabebe, Apalit, and San Luis. These towns are in easy communication with Calumpit, Bulacan, where a party of inoculators was recently at work and rumor has it, in the towns mentioned, that about 7 per cent of the carabaos had died as a result of the inoculation.

"It is estimated that 4,000 carabaos will be presented for immunization, and, when the results obtained by the present method are observed, that the people of Macabebe, Apalit, and San Luis will offer their carabaos for inoculation also.

"The general health conditions of the province are much better than at any time since the organization of the present board of health October 1, 1902.

"Note: Deaths among swine and poultry are from January 1, 1904, to June 30, 1904, only, the other reports on animals covering the entire fiscal year June 30, 1903, to June 30, 1904."

REPORT OF SPECIAL SANITARY INSPECTION IN PAMPANGA, TARLAC, PANGASINAN, BENGUET, AND UNION PROVINCES.

By Dr. M. C. Terry, *Medical Inspector.*

Dr. M. C. Terry, medical inspector, under date of the 8th of February, 1904, makes the following report of inspection in the Provinces of Pampanga, Tarlac, Pangasinan, Benguet, and Union:

"PAMPANGA.

"The following towns were visited: San Fernando, Bacolor, Guagua, Betis (now annexed to Guagua), Santa Rita, Porak, Mexico, Arayat, Santa Ana (now annexed to Arayat), Angeles, and Magalang.

"A board of health, properly constituted, exists in each of these places. The present sanitary condition of the following towns, in view of the existing circumstances, may be said to be satisfactory: Porak, Angeles, Santa Rita, San Fernando, and Magalang.

"None of the towns visited in this province is extremely dirty, and in general the work of the board of health is as well performed and accomplishes as much good as one should expect, taking into account the short time these local boards have been in existence and the prevailing ignorance, opposition, and unchangeable habits of the majority of the inhabitants. Of all the towns mentioned, Porak and Angeles make the best appearance.

"Betis has a neglected look. The condition of the public well is a source of danger. It is an artesian well, 22 meters deep, sunk in 1894, at a cost of $800, Mexican currency. A small expenditure would insure the town a good supply of safe water and would probably lessen the number of cases of diarrhea and dysentery.

"Guagua is in only fair condition. A street-cleaning gang is one of the greatest needs. Two carts, well managed, would be enough for both Betis and Guagua. These carts should be under the control of the board of health and not of the municipal president.

"In Santa Rita some very good work has been done in filling and grading the yards and streets. Sand and gravel are used for the purpose. A large pool of water at the right on entering the town should be filled.

"In Bacolor there has been strife between the president of the municipal board of health and the municipal president, a rather common finding, and the result is seen in dirty yards, neglected streets, and wandering hogs, a condition of things highly discreditable to a provincial capital. The president of the municipal board of health was unable to do much against the opposition of high authority. I understand that he has since been replaced by another man. The local ordinances are sufficient for the improvements the town needs.

"In Mexico the rubbish from streets and yards is thrown into the river or beside the bridge. Otherwise the town is in fair condition.

"Santa Ana is in fair condition although it has had no health board. In general the people clean up their premises fairly well.

"From what I have heard of Arayat since my visit there, I think I did not see the best part of the town. What I did see was unkempt and forlorn. A long, deep ditch at the side of the road would be useful if kept open. Divided, as it is, into many pools of standing water, within a few yards of the houses, it is undoubtedly a source of malaria.

"In twenty-three towns of the Province of Pampanga, having a population of 226,180, there were 1,905 deaths, with a mortality of 33.43 per thousand, for the three months ending September 30, 1903. The principal causes of death (excepting cholera) were: Convulsions of children, malarial fever, tuberculosis of lungs, senile debility, and dysentery.

"*Cholera.*—The following shows the record of cholera in seventeen towns of the province for the period from July 1, 1903, to November 29, 1903, inclusive:

Month.	Cases.	Deaths.	Mortality.
July	110	80	72.72
August	10	9	90
September	28	26	92.86
October	50	44	64.60
November	226	146	64.60
Total	424	305	76.96

"It will be observed that in the foregoing table a noticeable increase of cases and deaths is shown for the month of November. Investigation demonstrated the fact that this increase was due principally to the celebrations held once a year in the towns of the province. Up to the 15th of November cholera existed in but five towns of the province. Between this date, which coincided with the annual festivities in Bacolor, and November 26 new cases gradually appeared in ten more towns, and in Bacolor the number of cases and deaths also increased.

"There are seventeen towns having organized boards of health in this province.

"Dr. Terry states he has several times heard of calût, a tuber of some sort growing in the mountains, which the poor people eat in times of rice famine. If soaked and cooked for several days it is said to be wholesome, but if improperly prepared, it is poisonous and often proves fatal, the patient dying with many of the symptons of cholera, although the descriptions of its effects do not always agree.

"PROVINCE OF TARLAC.

"Dr. Terry reports that he inspected all municipalities in this province except Bamban and all barrios of importance except the following: Marcia, Anao, San Clemente, Variones, and O'Donnell.

"Capas was the first municipality visited. This place has a population of 3,809, disposed, for the most part, along one large street. Owing to fear of ladrones not only the hogs but also the carabaos are kept under the houses. Consequently the sanitary condition of the place is bad and there is no apparent way of improving it. At the date of my inspection, December 7, no entries had been made in the death register.

"*Concepcion.*—Nothing could be seen here to indicate the existence of a board of health. The streets were littered with rubbish and most of the yards were filthy. There was a dumping ground for rubbish almost under the windows of the president's house. The president of the board of health blamed the municipal ex-president; the municipal president blamed the ignorance of the people and the lack of funds, and all agreed in blaming Felipe Salvador, the outlaw. There was reason in all their excuses, but that they did not constitute the whole explanation was shown by the fact that the appearance of the town greatly improved while I was there. Dr. Catanjal agreed with me that it would be well to look for another man for president of the board of health, and later on Dr. Abad was transferred there from Pura.

"*Tarlac.*—This place has been much neglected by its local health officer and is in need of vigorous treatment. It has the advantage over most towns in the province of having two street-cleaning carts which cost $1, Mexican, per day each, but the cleaning is not supervised and is poorly done. In the rainy season when the river rises a considerable part of this town is inundated.

"La Paz is distant some three hours, horseback, from Tarlac, by a road practicably impassable in the rainy season. With the exception of some good houses recently built, the whole place looks very miserable. Perhaps the people could be taught to raise the ground under their houses a little above the surrounding level and so avoid so much standing water and so many hog wallows immediately under their habitations, but it is hard to see what more could be done for them at present. The president of the board of health of La Paz received ₱15 per month when the town was able to pay it. The month before I was there he had to be content with ₱7.50. The town of La Paz has a population of 4,148. It is now reduced to a barrio and made a part of the town of Tarlac.

"Victoria seems pretty well looked after. The market was especially clean and well regulated the day of my inspection. Both the president of the board of health and the municipal president have done good work for the board of health.

"Gerona has suffered from discord between the board of health and the president. The president has been molested, but he hopes to be able to pay more attention to the sanitation of his town in the future. The place made a good appearance the day of my visit. It employs no cleaning carts.

"Paniqui was in good condition. General cleanliness was as evident as in Victoria. Many of the premises are provided with excavations of water-closets properly penned against the entrance of animals. This is very exceptional, as the "hog system," as it may be called to avoid a more detailed description, is almost universal in the provinces inspected.

"Moncada, the next town above Paniqui, does not make as good a showing from a sanitary point of view as Gerona and Paniqui. The following from the record of the board meetings illustrates a common weakness:

"May 13 a session is called and a resolution passed calling on the president to urge a strict observance of the town's sanitary ordinances. July 3 a special meeting is called to inform the president that a case of cholera has appeared and to recommend to him the observance of sanitary rules. July 5 the board meets again, declares the presence of cholera, and calls on the president to buy medicines, etc.

"Similar instances can be found almost everywhere. The president of the board of health feels that he has no power whatever, or if he thinks he has he is in almost all cases afraid to exercise it. Having called the president's attention 'officially' to anything from the presence of cholera to the bad state of a water-closet, he feels that he has done his whole duty and the responsibility rests thereafter upon the president. Too often the president, it is true, opposes and makes of no effect the well-directed or well-meant efforts of the board of health. But, on the other hand, one does not often find a health officer who understands his powers and has the courage to exercise them. This is partly due to the fact that his salary, within the limits prescribed by law, is determined by the town council. It is clearly not to his interest to create a 'disgusto' between himself and the president.

"Camiling, exclusive of two barrios which have recently been added to it, is the largest town in the province. In general, and within the limitations already referred to, its sanitary condition is fair. In a barrio called Pao, fifteen minutes' walk from the presidencia, 9 cases of smallpox were discovered in the course of a brief inspection. The disease had been prevalent in that barrio and no action had been taken up to that time by either the local or the provincial health board. In the town at large, not counting San Clemente nor Santa Ignacia, there were 11 deaths from smallpox in September, 12 in October, 19 in November, and 19 in December up to the date of inspection, December 17. Two of the children in the barrio referred to, Pao, died that night, making a total of 21 for the month up to December 17, 1903.

"CHOLERA IN TARLAC IN 1903.

"*Its introduction into the province.*—From the beginning of 1903 to the first of the month of July last the entire Province of Tarlac was free from cholera. In the month of July certain persons proceeding from Dagupan, Bautista, and Bayombong introduced cholera into the town of Moncada, and in this municipality occurred the first case of cholera in the Province of Tarlac in 1903. From Moncada the disease was carried to Paniqui, where on the afternoon of the Fourth of July Father Victorio Nâjera died in the barrio of Bane.

"The first case of cholera in the city of Tarlac and in the town of Bamban also came from the Province of Pangasinan. In Victoria and Ano the cholera was introduced from the neighboring towns in the Province of Nueva Ecija. The first persons attacked in Camiling came from Pangasinan. In October cholera reappeared in Tarlac. Certain of the persons attacked came from other towns. In November several cases occurred in Murcia, the persons attacked coming from the festivities at Bacolor, Pampanga.

"*Measures adopted.*—In Moncada, Paniqui, and the remaining towns of the province the orders of the provincial board of health in matters of sanitation were carried out by the municipal presidents of health. All houses and all residents of houses in which cholera occurred were subject to a five-day quarantine. Disinfectants were generously supplied to all towns in need of same. The municipal councils appropriated funds for the purchase of medicines for the indigent sick. Municipal sanitary inspectors were appointed, the consumption of certain foods prohibited, and the use of water not previously boiled forbidden. Special cemeteries for those dying of cholera were established. Sanitary instruction in simple language within the comprehension of all were distributed to the municipalities and their translation into the current dialects was ordered. In a word the sanitary regulations adopted by the board of health in 1902 were again put into effect with the single exception of quarantine of the province.

Number of cases of cholera and date of last case in each municipality from June 30, 1903, to December 12, 1903.

Town.	Total number of cases with deaths.	Date of last case.	Town.	Total number of cases with deaths.	Date of last case.
Tarlac	26	Nov. 28	Anao	24	Sept. 17
Murcia	5	Nov. 25	Gerona	7	Nov. 6
Capas	7	July 31	Paniqui	268	Nov. 2
Bamban	3	July 31	Moncada	147	Sept. 7
Concepcion	14	Oct. 30	Camiling	66	Aug. 17
La Paz	8	Oct. 18	Santa Ignacia	1	Aug. 6
Victoria	120	Nov. 8			
Pura	20	Oct. 20	Total	716	

"PROVINCE OF PANGASINAN.

"Bautista has a president of a board of health, but no board. The schoolteacher member was transferred some time ago, and his successor has not been installed in his place on the board by the division superintendent of education. No member has been selected by the council. There are no minutes of meetings in the year 1902. The town needs a better market place. Stagnant pools at the side of the railroad station on railroad property should be filled up. I was told that smallpox existed in some distant barrios, but I found none in the town proper. The register showed no deaths from smallpox since November 11, 1903.

"Bayambang is an average town in the matter of cleanliness. It is separated from Bautista only by the river.

"Alcala was the next town inspected after Bautista. In the year just ended the fist case of cholera appeared July 19, 1903. The last case was on August 23, 1903. Total cases, 276; total deaths, 156. The greatest number of deaths in one day due to cholera was 13 on August 5. Only two sessions of the board were held in 1903, one in January and the other in May. From July 8 to September 27 there were 35 cases of smallpox and 26 deaths. There had been no service of garbage carts for about a month, owing to lack of funds. Before that time the town employed one cart at ₱20 per month. It is a straggling village, fairly clean.

"Villasis is neither better nor worse than the average. The first death from cholera was noted July 24, 1903, and there were 91 deaths from the disease that month. September 11 the epidemic was at an end, with a total of 385 deaths. One case occurred later, October 23. Smallpox cases occurred in every month from July on. They increased in September. There were 64 deaths from smallpox in a total of 107 cases that month, about the same number in October, 35 in November, and 34 in December up to December 28. Practically all cases were in small children under 5 or 6 years.

"Vaccinations began March 6, 1903. The president of the board of health vaccinated 447 persons, the greater number over 15 years of age. Everyone of the 447 had been previously vaccinated from one to eight times. Of the 447 all but 80 have had smallpox in the past, if the record can be believed.

"The attention of vaccinators going to the provinces should be called to the importance of vaccinating children under 5 years of age.

"Rosales stands in need of general cleaning. The health officer knew of no cases of smallpox in town, but in the course of our inspection we discovered three or four cases in the pustulous stage and as many in the stage of desquamation, all in children under 5 or 6 years of age. Cholera appeared July 27, 1903, increased rapidly in August, and disappeared August 26. This town charges $1.50 for each interment; if a coffin is used a second interment can be made in the same place within two years. Only three meetings of this board have been held since its organization in April, 1902.

"Umingan has no board of health and is not financially able to support one. The town is favorably located as to soil and drainage and its sanitary condition is as good as the average. The marriage record has no entries for 1903. The secretary does not know why.

"San Quintin is quite clean. Cholera appeared here in August 20, 1903. Vigorous measures to stamp it out were at once employed by the president of the board of health and resulted in the disappearance of the disease August 31, after a mortality of only 13. San Quintin has had smallpox cases every month since August. September showed 30 deaths from that source out of a total of 49; November, up to December 27, 24 out of a total of 44. The first case of smallpox was reported April 30. They repeatedly asked for vaccine lymph from the provincial board without getting it. The town was inspected by a deputy sent by the provincial board of health in January, 1903. A sanitary assistant inspector is employed at ₱12, local currency, per month. Up to August 1 a garbage cart was employed at 2 pesetas per day.

"Natividad no longer exists as a separate town, and has no board of health. It is situated on a gentle slope near the mountains and the natural drainage of the place is excellent. It has a neat, trim appearance due to the regular manner in which it is laid out. It was touched by cholera in 1903, the disease appearing July 23 and disappearing August 7, having caused 15 deaths. The first death from smallpox was recorded May 7, 1902. There was an average of 13 deaths a month from that disease in September, October, and November. In December, up to December 28, it was the cause of 22 deaths out of a total of 34. I found 4 cases while I was there.

"Tayag presents nothing out of the ordinary. Cholera ended here with a case reported September 6, 1903, which was recorded. The first case was imported from the town of Calasiao, where a fiesta was held August 18, 1903. There were 16 deaths from the disease.

"San Nicolas is up to the average in the matter of hygiene and sanitation. No deaths from cholera are recorded in 1903, but there was a suspiciously large number of deaths from diarrhea. The register is made up from data furnished entirely by the cura. No entries had been made for December. I was there January 1, 1904, and the president of the board of health had no record of any deaths that month.

"Santa Maria is now a barrio of Tayag. It had its first case of cholera July 29, 1903. There were 7 cases and deaths that month and 65 in August; last case August 22. About 180 children were vaccinated in 1902; none in 1903. The first case of smallpox occurred January 8, 1903. There were no more cases that month, but there were 18 in July and 22 in August.

"Asingan does not make a good showing, for its health officer has evidently been very careless. The death record is poorly kept. Whole pages are blank in the column for diagnosis. Cholera appeared July 11, 1903, in the person of a Chino who came from Bautista. The last case was recorded September 6, 1903. Only a guess could be made as to the total number of deaths from this cause, but it was undoubtedly enormous. Out of 158 deaths from smallpox, September to December, only two were over 6 years old, one 7 years, and one 8 years old. The record is kept by the cura who furnishes the notes to the municipal secretary. The relatives sometimes inform the secretary or the health officer. No vaccinations were done in 1903.

"San Manuel, now a barrio of Asingan, was not inspected. Its former president of the board of health came to see me at Asingan, and from questioning him I determined that the condition of the place did not differ materially from towns already inspected.

"Binalonan is rather above the average in cleanliness of houses and yards. Beri-beri is a more common diagnosis here than in other towns so far as I have gone. The first case of cholera was noted July 7, 1903. There were 118 deaths that month, 151 in August, and 1 in September. The last case was September 6, 1903; all data furnished by the padre. Of all the smallpox cases, October to December, only three were over 5 years of age.

"Pozorrubio is decidedly dirtier than most towns, except around the plaza. The market place is cumbered with the accumulated trash and manure of weeks, in which a policeman and an 'encargado de limpieza' wander aimlessly about. The town employs no garbage carts, but has a sanitary inspector to assist the board of health and a man charged with the regulation of the market, at ₱8 and ₱7, per month, respectively.

"An ordinance requires smallpox and cholera dead to be taken directly from the house to the graveyard. There is no reason to suppose it is enforced. There were deaths from smallpox in every month of the year, except February and March.

"Cholera began July 21, 1903, and lasted until September 23, 1903, with deaths as follows: July, 3; August, 151, and September, 28.

"Manaog is in fair condition. In the last three months of 1902 and the first three months of 1903 some 700 vaccinations were done here, almost all of them in children under 5 years, and about 90 per cent of them successful. The value of that work is seen in comparing the smallpox deaths of the town with those of the neighboring towns, Asingan, Binalonan, and Pozorrubio, where, as far as can be determined from imperfect records, vaccination was not so well carried out. In the months of September, October, November, and December, 1903, Manaoag, with a population of 19,763, had only 7 deaths from that disease; Asingan in the same months, with a poulation of 12,901, had 148; Binalonan, population 14,615, had 125; Pozorrubio, population 12,811, had 46.

"Cholera began July 24, 1903, and ended September 10, 1903, with a total of 307 deaths. The town hires one cart at ₱20 local currency, per month, and a sanitary inspector at ₱15.

"Urdaneta does not give much attention to sanitary matters. Cholera began June 23, 1903, and killed, all told, 752 persons. The epidemic practically ended in August, though there were 7 deaths from it in September, 1 in October, and 1, the last, November 14, 1903. Smallpox was present during the spring and summer; 16 died of it in July. The total number of deaths that month was 567 according to the official death record.

"There are glaring discrepancies between the death record kept by the town and the parish register. The former in the month of November shows 28 deaths, the latter 32. The former, on the day of my inspection, January 6, 1904, had no entries for December.

"Vaccination seems to have been well carried on here, some 500 having been vaccinated during 1903. About 300 of them were children under 5 years of age. The result, however, in recorded in the first 200 only.

"Santa Barbara, aside from a beautiful convent and a very few good houses, is a string of ordinary nipa shacks. There is said to be some smallpox there, but not much. Santa Barbara is now incorporated with Calasiao.

"Calasiao is a clean-looking town and is, I believe, well looked after by its president of the board of health who has had some experience on the board of health in Manila and shows the result of that training. The town should have a new market place, as the old one is in a ruined state. It needs one or two garbage carts. January 17, 1903, the first case of smallpox was discovered. It was a mild case followed by recovery, but the house was disinfected and the contacts vaccinated. Cholera was prevalent from the middle of June to the last of September, 1903, causing 689 deaths.

"Malasiqui does not call for special comment except as to its drainage. It has some good ditches, but they are so cumbered with banana stalks and other rubbish and are so frequently stopped by little dams placed to catch fish that they are practically useless. Furthermore, they are not always connected from block to block. The diagnoses in the death register are made by the padre.

"The last case of smallpox here occurred April 7, 1903. In 1901 the Military Government vaccinated everybody over 1 month old.

"The first case of cholera was recorded July 14, 1903, after two weeks of 'acute enteritis,' etc., as I have observed in several other towns. The last case was September 4, 1903; total invasions, 651; deaths, 567, all natives; table attached. None of the town officials, when I was there, had received any pay since May, as all funds were spent in the cholera epidemic of 1902 and 1903.

"San Carlos was inspected January 8, 1903. Luis Revilla is the acting president of the board of health. He relieved the regularly appointed man, Eustasio del Rosario, August 7, 1903, and, for some reason which was not made clear to me, has continued acting ever since, while the other man is secretary in a college in Dagupan. About the same sanitary conditions exist here as elsewhere. The records are not well kept. No fines have been imposed in sanitary cases since May, 1902.

"The town hires two street carts at ₱20, local currency, per month, each. August 4, 1903, 26 deaths from diarrhea are recorded. August 11, 1903, the first diagnosis of cholera was made. The epidemic lasted until October 5, 1903, causing a total of 384 deaths, almost all of which were in August. There was a death from smallpox July 4, 1903, and, according to the record, none since.

"Dagupan could not well be dirtier that it is, but at the same time, considering the location and the character of the population, it is difficult to see how it could be much improved, except at great expense. ,The town hires two carts and a sanitary inspector.

"Smallpox has been rife in the barrio of Buncan across the river, but is declining there. It is increasing slightly in the town proper.

"Bimanley and Lingayen are both very neat and clean compared with the majority of the towns.

"Magdalena, also, is better than the average. Smallpox has been present every month of the year 1903 except January and February.

"June 25 a death from diarrhea sospechosa' is recorded, a second from the same cause, July 3, 1903, and from that time on to July 19, 1903, 18 such cases are entered. The first diagnosis of cholera was noted July 21, 1903. The cholera deaths were as follows: July, 149; August, 155; September, 6; October, 2; the last case, October 8, 1903, although there were suspicious cases as late as November 14, 1903, Some 200 children had been vaccinated in December and January up to the time of my visit. A public vaccinator arrived January 19, 1904. One cart is employed at ₱30 per month.

"San Jacinto, now a barrio of Manaoag, was not closely inspected. Passing through it on the way to Twin Peaks I thought it was a clean little town. A municipal policeman told me that there had been from one to three deaths a day from smallpox in a barrio between San Jacinto and Manaoag, called Lumni, but that the epidemic was declining now in all barrios and had disappeared from the population.

"Salasa is a very clean little town. There have been no deaths from smallpox since the military occupation of the place, during which time everybody was vaccinated. Across the river, however, in a village belonging to Lingayen there have been several cases lately and at least three deaths.

"Cholera began July 9, 1903, and deaths were as follows: July, 89; August 21; September 9; date of last case, September 13, 1903. The commonest diseases and the most frequent causes of death are malaria and convulsions of children. Total deaths were: October, 26; November, 18; December, 18. The population is 8,768. Annual death rate estimated from the three months named is 28.1.

"Aguilar, distant about 6 miles from Salasa and recently incorporated with it, is fairly clean. The Salasa board of health has not yet decided in what way it shall look after the sanitary work in this place or how the diagnosis shall be verified in deaths occurring there. The same problem confronts other towns in all the provinces visited, except Benguet, owing to the recent consolidation of municipalities. Aguilar has a parochial graveyard and a convent in charge of a cura.

"There were no deaths from smallpox in 1903. The first case of cholera appeared August, 1903, preceded by 12 deaths from 'stomach ache,' all in adults. Total cholera deaths, 29 all in August; last case, August 15, 1903. The population is 7,774. The annual death rate, based on the number of deaths in October, November, and December, is 20.1.

"Mangatarem is a clean-looking town, well laid out in broad, shaded streets. Its sanitary condition, for a Filipino town, is good. No meetings of the board have been held since December, 1902. The elected member is unable to attend, and the school-teacher has never been nominated. This is unfortunate for the board, as the American school-teacher is always a valuable member.

"Some 600 vaccinations have been performed since November, 1902, 9 since January, 1903. The president of the board of health had the idea that the vaccine virus had to be bought by the town and was waiting, he said, until the council approved his estimate of ₱70 for the purchase before going on with the work. There were deaths from smallpox every month from April to July, but there have been none since, according to the register, and there were no cases at the time of my inspection so far as I could discern.

"Cholera prevailed from July 17, 1903, to August 28, 1903. Malaria is the commonest cause of sickness and death. Both here and at Urbiztondo, across the river, beri-beri occurs oftener than in other towns. The population of the town is 12,894. Its death rate is estimated from the number of deaths in October, November, and December, 1903, and is 17.8+. The death register is a copy of the padre's book, diagnosis and all.

"Urbiztondo has had no health officer since March, 1903. Malaria is the chief cause of death and sickness here. A large, deep gully always containing more or less water winds through the town. Smallpox did not appear here until July 10, 1903. There was a second case, death occurred, in August, and then no more until one on December 30. It is very doubtful if this second was correctly reported.

"Cholera extended from July 2, 1903, to September 3, 1903, causing 55 deaths.

"The statistics for October, November, and December, such as they are, indicated an annual death rate of 17.8 per thousand. The population is 7,393.

"Two other distant barrios of Mangatarem, Casilagan, and Lanca, the latter a small rancheria of Aetas Indians, were visited without the gain of any information as to sanitary affairs except a better idea of the difficulties under which this work must be carried on in the provinces.

"In the Province of Pangasinan there occurred in thirty-one towns, with a population of 379.238, the following number of deaths from the diseases named during the period of June 1 to December 31, 1903:

Disease.	July.	August.	September.	October.	November.	December.	Total.
Malaria	258	333	227	110	85	98	1,111
Smallpox			93	108	111	165	472
Tuberculosis		26	52	41	42	48	209
Infantile convulsions	203	291	222	43	32	31	822
Lack of care					2	4	6
Senile debility		14	2	5	4	4	29
Dysentery	187	388	198	31	14	7	825
Eclampsia			31	50	32	43	156
Intestinal catarrh					4	6	10
Meningitis				1	3	6	10
Beri-beri				1		2	3
Dengue	57	84	13				154
Enteritis	94	20	28				142
Gastric fever	19						19
Pneumonia		13					13
Total	818	1,169	866	385	329	414	3,981

"There occurred also in the province 4,688 deaths from cholera in thirty-five towns and 1,643 deaths from smallpox in thirty-seven towns, from July 1, 1903, to December 23, 1903, when the last cases were registered.

"Dr. A. Sison, acting president municipal board of health of Lingayen, Pangasinan, reports as follows:

" 'According to reports received from the various municipalities of this province, the epidemic of cholera began on the 1st of July, 1903, in the town of Dagupan, where four fatal cases occurred. From that date cases have occurred in the remaining towns of the province, this with a certain irregularity since in passing over the province it skipped certain towns only to return and attack them at a later date. It required some two months for the disease to pass over the entire province, the last town attacked being Urbiztondo in which the first case appeared on the 20th of August, 1903.

" 'The mortality of this epidemic as compared with that of 1902 is relatively less. The disease reached its height in July, August, and September. After these months isolated cases appeared in some of the towns up to the month of November, in which the disease disappeared. The towns which suffered most severely were Urdaneta, Villasis, San Carlos, Dagupan, Mangaldan, Calasiao, and Manaoag.

" 'The provincial board of health being informed that cholera had again appeared in Manila, Aparri, Pampanga, and other points in the Archipelago, adopted, on the 22d of May, 1903, rules and regulations tending to prevent the propagation of cholera in case it should again occur in Pangasinan. These instructions were transmitted to all the towns of the province in order that they might be adopted and strictly complied with. Cholera reappeared as stated above. The instructions referred to were immediately put into effect. These consisted in the appointment of sanitary inspectors, disinfectors, quarantine guards, and in the formation of burial corps. These employees were to commence their work immediately upon the appearance of cholera in the municipalities. It was further decided to establish hospitals if this should be necessary, in addition to the disinfection of houses in which cases of cholera might occur, and the quarantining of contacts. In the regulations above mentioned it was stated that the sanitary inspectors should be provided with medicines for those whom they might find ill in their respective districts, the administration of medicines to be under the direction of the president of the municipal board of health. Certain of the towns, on account of lack of funds, were unable to adopt these measures. In these cases the provincial board of health, having received due authorization from the provincial board, appointed sanitary inspectors and disinfectors and sent them to the towns in question with necessary medical supplies and disinfectants.

" 'In Lingayen, whose board of health I happened to direct, the regulations already mentioned were adopted and complied with, and during the epidemic which commenced on the 2d of July, 1903, and continued to the 22d of October of the same year these sanitary inspectors and disinfectors rendered service. The number of employees was reduced as the number of cases decreased. From the beginning of the epidemic down to the middle of the month of September there was an average of from three to four deaths every day, but after the latter date cholera decreased in such a manner that on the 22d of October, the date on which the last case occurred, a considerable number of days had elapsed without a single death. Cases of cholera also appeared in the provincial jail, but, thanks to the immediate isolation of those attacked and disinfection of the contacts and of the jail itself, there occurred but three deaths. Fearing that the disease might develop among the prisoners, the provincial board of health recommended to the provincial board the appointment of a temporary sanitary inspector who would render service in the jail. The recommendation was approved by the board. A sanitary inspector was appointed and continued to render service until it was plain that he was no longer required. In this epidemic and in the one of the previous year the mortality was not so great as in the other towns.'

"PROVINCE OF LA UNION.

"This province, as a whole, is cleaner than any other I have inspected. Bangar is the only town which is conspicuously dirty. With the exception of Tubao, Naguilian, and Balaoan, all the important places are situated near the coast. They are all much alike as to location, size, degree of cleanliness, common diseases, native and church architecture. Boards of health exist in all these town except Balaoan and Tubao. That in Bangar has been organized since my visit.

"San Fernando, at the present time, is going backward rather than forward in sanitation. Some regulation of water-closets is much needed. There is a possibility that the town may attempt a modified pail system. In fact, such a system is now in use on a small scale.

"Tubao was not visited. In conversation with the school-teacher and the president whom I met at Agoo, I learned that there have been a few mild cases of smallpox recently, but no deaths. No vaccinating was done in 1903. The streets are in need of attention on account of weeds and rubbish. No carts are employed.

"According to the municipal records, cholera in 1903 appeared in the following towns in the southern part of the province: Bauan, Agoo, Rosario (barrio of Santo Tomas), and Santo Tomas. Bauan had 17 deaths from that cause between July 18 and August 21. The cases in Agoo occurred in October. Rosario had 33 deaths from July 14 to October 15. There was some question as to the diagnosis in these cases, but the disease was probably true cholera, as the majority of cases were in adults entered as having died 'from cholera, one day sick,' 'cholera, twelve hours,' 'cholera, six hours,' etc. Santo Tomas had 27 cases between September 8 and October 19.

"The commonest diseases throughout the province are malaria, dysentery, and convulsions of children.

"The division superintendent of instruction rendered valuable assistance in this province in regard to vaccination and the elimination of contagious diseases.

"*Cases and deaths from smallpox from July, 1902, to January 22, 1904.*

Town.	Cases.	Deaths.	Town.	Cases.	Deaths.
San Fernando	65	41	San Juan	56	39
Bauan	19	9	Bacnotan	10	8
Naguilian	35	26	Namacpacan	32	16
Cava	30	17	Balaoan	32	11
Aringay	10	5			
Santo Tomas	8	5	Total	297	172

"CHOLERA DATA FOR MONTH OF OCTOBER, 1902.

"In certain barrios of the town of Santo Tomas, in the last ten days of September, several suspicious cases of diarrhea occurred. Owing to the remote position of these districts and to the fact that the cases were tardily reported, it was not possible to determine the nature of the disease until the 1st of October, there occurring in the meantime 35 cases and 32 deaths. Cases appeared in the barrios of Linog, Malobago, Namonitan, and Baybay, the disease disappearing on the 23d of the month of October.

"In October, 1902, the cholera appeared in Agoo, existing there until the 25th of the same month. Forty cases and 35 deaths occurred in Agoo in the barrios of San Pedro, San Joaquin, San Agustin, Nazareno, San Antonio, San Jose, San Nicolas, and Macalba.

"The disease did not assume an epidemic character, since in no one house did two cases occur, excepting in the case of the steward of the priest of Santo Tomas, who succumbed twenty-four hours before his wife, both dying of cholera.

"In view of the character assumed by the disease it was diagnosticated as 'cholera nostras' rather than Asiatic cholera, its cause being attributed to the rainy season and the lack of hygiene. As soon as the people commenced to use boiled water the disease ceased.

"In fourteen towns, with a population of 125,814, there occurred the following number of deaths from the diseases named during October, November, and December, 1903:

Disease.	October.	November.	December.	Total.
Cholera	43			43
Diarrhea	10			10
Dysentery	21	18	6	45
Enteritis	8	16		24
Enteric and stomachic diseases	4		2	6
Infantile convulsions	28	24	20	72
Malaria	48	40	47	135
Measles	3			3
Meningitis		6	4	10
Smallpox	23	8	20	51
Senile debility		6	9	15
Tuberculosis	18	17	11	46
Typhoid fever	2	2	2	6
Total	208	137	121	466

"PROVINCE OF BENGUET.

"This province was inspected only in passing through it to Union. The following information was obtained, chiefly from the provincial records at Baguio.

"The death rate in 1902 was over 50 per thousand, due to the invasion of cholera. The rate for 1903, based on fairly accurate returns for the whole twelve months, was approximately 13 per thousand, which is probably close to the normal. 'Muerte natural' is the most frequent explanation. Then follow in the order given smallpox, calentura, and dysentery. There were 69 deaths from smallpox. So far as known, there are no cases of the disease in the province at this time. There was no epidemic in the year 1903. One suspicious case, treated as cholera, occurred at Baguio, but only one. A common cause of death in the local nomenclature is 'pasua.' The term seems to cover bronchitis, pneumonia, and tuberculosis.

"The natives seen around Baguio and on the trail are splendidly developed, well-nourished, and robust. The average age at death, without taking into account those who die in infancy, is very low.

"A general vaccination should be done here, if possible. Judging from groups examined on the trail to Naguilian a large number, even of the adults, have never been vaccinated.

"The customs and habits of the people constitute too intricate a subject for a brief investigation.

"THE BENGUET ROAD.

The greater part of the work now going on is done at an elevation of from 1,000 to 2,000 feet, in the canyon of the Bued River. The road is shaded during the greater part of the working day and the air is cool and bracing to a degree that is noticed at once by the traveler who goes up from Dagupan. The rainfall is heavy during the season and showers are not uncommon at other times. Vegetable growth is rank and dense.

"By far commonest diseases which are brought to the surgeon's attention are malaria, diarrhea, and dysentery. Following these come tropical ulcers, wounds, and injuries. Beri-beri, if the disease is really beri-beri, is extremely common at camp 3 among the Chinese and Japanese. I was not able to satisfy myself as to the significance of certain ill-defined symptoms in some twenty or thirty Japanese examined while they were at work on this road. As this place is likely to be the location of a very large camp as headquarters are moved, the subject is worthy of further investigation. Seven deaths from beri-beri at this camp were recorded in the months of November and December out of a total of 13.

"There were eight or ten men in the hospital at headquarters and two at camp 3. Those in the main hospital were cases of malaria, dysentery, minor wounds and injuries, and one of tuberculosis. The two cases at camp 3 were one of beri-beri and one of dysentery. One case, probably beri-beri, was in the hospital at camp 4. No men sick in quarters.

"The main hospital at Twin Peaks, headquarters, is very well supplied with medicines and surgical dressings but insufficiently equipped with cots and bedding. A proper supply, however, of all necessary articles was said to be on the road. The hospitals in camp 3 and camp 4 need better accommodations for sick and injured and some few of the simple conveniences for treating wounds. Each of these three hospitals is in charge of an American doctor. In addition there are four hospital corps men and an attendant at headquarters, one hospital steward each at camp 3 and camp 4, and one hospital steward at Doud's Camp, camp 3½, where there is no hospital.

"The ration is sufficient and well prepared. One cook, with helpers, is allowed to every twenty-five men in a mess.

"The water supplied at headquarters and camp 4 would be above suspicion anywhere outside of the Tropics. It is ordered boiled and the men are forbidden to drink from the river. These orders are as well carried out as is possible under the circumstances. Running through camp 3 there is a small, shallow stream which might easily be polluted from a portion of the camp situated on the hill above it, and it is positively certain that this stream is and will continue to be used by many of the laborers in spite of orders and policing.

"Ten hours' labor is expected of all nationalities alike each day and are generally put in, even during the rainy season.

"The sanitation of the road and its various camps is under the direction of the chief surgeon and his medical assistants, aided by the regular police force; a special sanitary inspector, and a daily detail from each camp, in addition to which each gang does ten minutes' general cleaning of quarters every morning before going to work. All camps are supplied with water-closets. The buildings, as a rule, are sufficient for shelter and protection. Some Chinese quarters are too crowded at camp 3.

"Cholera appeared twice on the Benguet Road in the year 1903, and each time ran a short course. The first appearance was from August 3 to 9, during which period it was the cause of 8 deaths as follows: August 3, 5 cases; August 4, 2 cases, and August 9, 1 case. November 14 it appeared again, disappearing November 16 after causing four deaths.

"The average number of men employed was: August, 972; October, 2,831; November, 2,309, and December, 1,695.

"DISEASES AMONG DOMESTIC ANIMALS.

"There are none in the Provinces of Pampanga and Tarlac, according to the best information I could obtain.

"PROVINCE OF PANGASINAN.

"An epidemic of ophthalmia, mild in character, is said to prevail among fowls in Lingayen. In San Quintin, Tayug, and other towns in that part of the province there is an epidemic disease among hogs, now declining, characterized by ophthalmia and general diarrhea. The disease lasts from one to three weeks and shows a mortality of about 50 per cent in untreated cases. A case of surra was reported at Bautista a few days before I was there, December 15, 1903. Binalonan had some cases of rinderpest as late as October, but has none now. The board of health of Calasiao, November 23, 1903, took official notice of the presence of epizoötics in this town.

"PROVINCE OF BENGUET.

"A native by the name of Mateo, living near Baguio, within the two weeks preceding my visit, January 14, 1904, lost five carabaos from a disease which was probably rinderpest.

"PROVINCE OF LA UNION.

"In the month of December five horses, five carabaos, and two cows died in the town of San Juan and its barrios, presumably of surra and rinderpest. At Balaoan the president stated that since September they had lost some fifty or sixty horses of a disease which he called 'lamparones.' It is a disease which is characterized by tumor and swellings, and generally lasts from one to three weeks. He also reported a few cases of rinderpest in cows. In Bangar there are said to be a few sick carabaos, but no sick horses or cows. In this connection it is important to note that Dr. McMullen, veterinarian, Board of Health, found a number of cows with the symptoms of anthrax at Tagudin, Ilocos Sur, just across the river from Bangar.

"PROPOSED BOARD OF HEALTH HOSPITALS.

"Pampanga wishes to have one of these hospitals at San Fernando. The advantages which this town present and the generous aid which would be given by the province are set forth in a resolution of the provincial board.

"The province owns the site of a former Spanish military hospital, but a better site could, in my opinion, be selected for the proposed hospital. No one building of sufficient size is available, but there are two adjacent houses near the old town hall which could be had and which would be sufficient for a temporary institution.

"Angeles, also in Pampanga, is an important trade center and offers certain hygienic advantages. Ground would be given by Dr. Mesina. The Dagupan town council considered the subject and passed a resolution. I do not think there is any place in this town which would be suitable for a hospital of the kind contemplated. On the other hand, if a site were chosen on the beach, either here or at Lingayen, a well-appointed hospital would relieve both the civil hospital at Manila and the sanitarium at Baguio. Ground could be secured adjoining the Constabulary headquarters on Lawton Beach. No building suitable for temporary use was found. The following advantages are presented by Lingayen, the capital of the province:

"(1) A good hygienic site could be provided if a location on the beach were desired; a fine situation, easy of access, could be secured, and the road to it kept in good condition.

"(2) Temporary quarters would be provided during the construction of the permanent hospital.

"(3) The town has a plant for distilling water which would be available for the use of the hospital.

"(4) An ice plant is projected.

"(5) The town being the seat of government, a number of advantages result, among them the certainty of getting reliable transportation for doctor or nurse, without cost, in case of emergencies.

"(6) There are 48 Government employees in the various offices and schools, 20 of whom are Americans.

"(7) The town draws from as large a surrounding country as does Dagupan.

"(8) Daily mail and express communication with Manila.

"San Fernando, Province of Union, would give ground for a hospital and probably would contribute toward the cost of buildings. A suitable building could be rented for temporary use.

"CUSTOMS AND HABITS.

"An almost absolute ignorance and disregard of the laws of health characterizes the unenlightened portions of the communities visited. From conversation with Spaniards and some Americans who have lived in the provinces for a number of years, there is reason to believe that some progress is making, however slow, in this respect. Particular customs of interest are rare. I may, however, mention the following, not vouching for their observance outside of the places where I learned of them:

"(1) A lighted lamp is placed under the house where a woman is in labor.

"(2) A teaspoonful of castor oil is given a child at birth.

"(3) The colostrum is considered harmful and is not given. Repeated doses of equal parts of sweetened water and an infusion of some bitter leaves are given until the milk secretion is established.

"(4) Additional food, in the form of cooked rice, is generally given from the age of three or four months in order that the child may grow faster. Lactation is continued to the age of twelve to eighteen months.

"(5) A long, thorny vine is stretched around the supports of a house where there is a case of smallpox to keep the disease from attacking the other members of the family.

"(6) Processions of singers go about the town in cholera epidemics singing prayers for relief to Saint Roque.

"(7) Disinfection is accomplished by burning a handful of guava leaves in a brazier in the house or underneath it. One of the board's employees, a municipal president of a board of health, commented indignantly on this custom. His own method is to burn at least two spoonfuls of sulphur.

"Very few towns are supplied with sufficient disinfectants to disinfect even the first few cases of an epidemic. Almost all the local presidents of health boards need detailed practical instructions in methods of disinfection.

"In this connection it may be noted that the people have a peculiar horror of the smell of carbolic acid. So far as possible it would be better to use other disinfectants in their houses.

"Some provisions for giving medicines to the poor, free of charge—first of all, quinine—would be a great benefit.

"Blank burial permits with proper stubs on duplicates issued to all municipalities would make statistics somewhat more reliable.

"The railroad water-closets from San Fernando to Dagupan, without more than one or two exceptions, are in bad condition. Many of them are completely ruined and almost all are extremely filthy.

"At Manaoag, Pangasinan, and in some other places in that province and in Zambales, there was in 1888 an epidemic of some disease, not cholera, which was even more fatal than the cholera of 1883. It was not influenced by quinine. It began with a chill, was followed by a high fever, and was almost invariably fatal in from two days to two weeks."

REPORT OF SPECIAL SANITARY INSPECTION OF THE PROVINCES OF SURIGAO, LEYTE, AND SAMAR.

By Dr. ROBERT L. BARTLETT, *Medical Inspector.*

Dr. Robert L. Bartlett, medical inspector, under date of the 14th of April, 1904, submits the following report of his tour of inspection of the Provinces of Surigao, Leyte, and Samar:

"The general health of all three provinces is comparatively good, and has been for some months.

"The epidemic diseases among men seem to be nearly stamped out, with the exception of isolated cases or groups of cases of smallpox, although quite recently smallpox has assumed a rather severe aspect in southwestern Surigao.

"Among the domestic animals, both surra and rinderpest seem to have practically disappeared. In each of these provinces it is difficult to arrive at any accurate conclusion, because of the scarcity and inaccuracy of records and of the small number of competent observers who have reported the prevailing diseases and the deaths resulting therefrom.

"It can be said that the efforts of the Insular Board of Health have borne good fruit, for there is an inclination, plainly to be seen, toward a better condition of sanitation, in spite of the hostility and indifference of a great number of the people toward measures which have been instituted for their good.

"In these three provinces the proper formation and organization of municipal boards of health is a difficult problem. This difficulty seems to be composed of several factors:

"(1) As the law stands it requires a graduate or undergraduate in medicine to act as president of municipal boards of health. This prevents many municipalities from organizing health boards, as no graduates or undergraduates are available.

"(2) In certain towns the people, and some of the officials, fail to recognize the importance of a properly conducted health board.

"(3) The funds in municipal treasuries available for such purposes are frequently insufficient to pay the salary of a competent man.

"(4) The means of transportation are often so poor that presidents of provincial boards of health can only rarely visit some of their municipalities.

"The municipal boards of health now formed have met with considerable difficulty in carrying on their work, partly because they have not been sufficiently instructed how to proceed and partly because of the fact that one or more of their number have been withdrawn and sent to other places by their respective departments, as, for example, in cases of the school-teachers and the contract Army surgeons.

"The work of the provincial and municipal health boards has been carried on largely in conjunction, thus in many cases it is not possible to determine how much either is responsible for some of the work accomplished.

"SAMAR.

"PROVINCIAL BOARD OF HEALTH.

"Dr. G. I. Cullen is president and also president of the municipal board of health of Catbalogan; supervisor, R. E. Scott. The provincial board of health was organized in the spring of 1902. The meetings are held according to Act No. 307, and special meetings, as the occasion requires. Their method of keeping records is quite systematic and is the best I have yet seen. A book with the minutes of the bimonthly and special meetings is kept, as is also a book for the letters and telegrams received and sent. A card-index system is used to record the monthly reports received from the various towns, in regard to the births, deaths, and epidemic diseases occurring in the said towns. A record is also kept of all persons vaccinated by the provincial and municipal vaccinators. A report of the health condition is rendered to the president of the provincial board of health daily by each town connected with Catbalogan by telegraph and monthly by all other towns; these reports being sent either by boat or courier.

"MUNICIPAL HEALTH BOARDS.

"There have been eight organized in accordance with Act No. 308, but at present there are only five in which the president has the qualification required in the act referred to. These are:

"Catbalogan, president, Dr. G. I. Cullen.

"Gandara, president, Dr. L. D. Bell, contract surgeon.

"Borongan, president, Dr. F. S. Griffis, contract surgeon.

"Bobon, president, Dr. Magio Alunes.

"Guiuan, president, Dr. Card, school-teacher.

"The following municipalities organized health boards, but at present are without physicians as presidents, they having been removed for some cause or resigned:

"Calbayog, Henry W. Rambo, undergraduate, resigned; Señor Scoda, practicante, acting.

"Catubig, Dr. W. F. Richardson, contract surgeon, transferred by military department to another province.

"Laguan, Dr. M. F. Marvin, contract surgeon. The commanding general refused to approve his detail.

"Under the consolidation act Samar has twenty-five towns, and of this number fully a dozen could not afford to pay the salary of a physician, such as would be needed for his support, as the opportunity for private practice would be very small. In a few of the other towns it would seem best not to attempt to institute any radical sanitary reforms at present, owing to the unsettled condition of the people.

"WORK ACCOMPLISHED.

"The work accomplished consists principally in the quarantining of the towns of Basey, Catbalogan, and Calbayog in June and July, 1902, when determined measures were made to prevent the spread of cholera. Public water-sterilizing stations were established in most of the towns, and people compelled to use this water. Wells were guarded and in some cases were filled up and destroyed. In the larger towns the houses in which cholera had occurred were disinfected, and in some cases were burned. A cholera hospital was established at Catbalogan, also a quarantine station.

"Vaccination has been carried out quite extensively in most of the coast towns. Permission has been obtained for the utilization of prisoners in cleaning up the streets and the towns in general.

"The buying and distribution of medicine and disinfectants and the explanation of the proper use of same were practiced during the epidemic of cholera.

"The drainage of the towns of Catbalogan, Calbayog, Borongan, and Tanany has been perfected, and in the first-named place considerable land has been filled in and much swampy land reclaimed. An attempt has also been made to encourage the people to build suitable closets on the pail-system order, but at present little has been done in this line.

"HYGIENE AND SANITARY CONDITION OF TOWNS.

"While there are many things which do not comply with the American idea of good sanitation, still it can be said that most of the towns are in a fairly good sanitary condition. The condition of the larger and better towns can be grouped together, for the purpose of description, as their hygienic condition is very similar. These towns are Calbayog, Guiuan, Catbalogan, Bobon, La Granja, Taguan, and Borongan. These are all situated on the coast, not far above sea level, and with the exception of Borongan have sandy soil. Their water supply is from springs, river, and rain water. The latter is caught in metallic or stone cisterns, which is most cases are in good condition. With the exception of two or three months of the year, the water supply seems abundant. The streets in these towns, are, as a rule, well laid out and kept fairly clean. All of these towns have one or more paved or macadamized streets. This is specially true of Catbalogan and Taguan. In most of the towns gutters have been built and the drainage is good. There are the usual number of houses of strong material in each town, the rest of the houses being the usual nipa and bamboo shacks. There is plenty of space between the houses and the yards are kept in a fair condition. Most of the sleeping rooms are well raised above the ground.

"DISPOSITION OF SLOPS, GARBAGE, AND EXCRETA.

"Slops are thrown out of the window or into the gutters or drains.

"Garbage is collected at more or less regular intervals and thrown into the sea or burned on the beach.

"*Excreta.*—The closets in the better class of houses are on the pail-system order, sand, and in a few cases lime, being used to cover the excreta. Most of the natives have no regular closet, simply using holes in the ground.

"The condition of the stores is good, especially the Chinese tiendas. Many of these have been recently whitewashed. Each of these towns has a municipal market, although in most of them very little food is offered for sale. The markets, as a rule, are kept clean. There are but few cattle, carabaos, or horses in this province, and the streets therefore are not soiled from this cause.

"It is claimed in all these towns that ordinances have been passed by municipal councils requiring animals to be kept off the streets, but from the appearance of the large number of dogs, hogs, and chickens it would appear that this ordinance is not enforced.

"In the towns of Catbalogan and Calbayog part of the land is quite swampy, but drains have been made and the condition is rapidly improving. The water taken from most of the wells in these towns is rather brackish, owing to the nearness of the sea, and is therefore not used for drinking purposes.

"In the smaller towns of Tubig, Catubig, Oras, Basey, Balangiga, Capul, Santo Niño, Villareal, and Almager there is very little attempt made in keeping the towns clean. The streets are in poor condition and there has been very little attempt made at artificial drainage.

"LEYTE.

"The provincial board of health was organized in 1902. The present members are: Dr. Harry Baker, president (since resigned); Dr. Arce, municipal physician (now acting president of the provincial board of health), and Provincial Treasurer and Acting Supervisor Conrow. Dr. Baker was just on the point of leaving for Manila when I arrived, but he informed me that he had not as yet succeeded in getting his records in shape. The board is said to hold regular meetings, but only a few minutes of same could be found. A record is kept of letters and telegrams received and sent, and there is also an incomplete record of vaccinations. There is a number of monthly reports from the various towns in the province, giving births, deaths, and marriage records. These are very incomplete.

"There are but two towns having organized boards of health, viz, Tacloban and Bay Bay, Dr. Arce being president of the former and Dr. Llora of the latter. The records in both of these towns consist simply of births, deaths, and marriages, and reports of vessels entering and leaving—that is, bills of health.

"Somewhat over one year ago municipal boards of health were organized in thirty-four towns in the province, but as the presidents of the same did not possess the necessary qualifications required by Act No. 308 the provincial treasurer refused to allow the payment of their salaries, and the various boards were soon dissolved. With the exception of Tacloban, Ormoc, and Bay Bay, there are towns in which resides a physician, and scarcely any towns have practicantes.

"WORK ACCOMPLISHED.

"The usual quarantine of the coast towns—notably Tacloban, Ormoc, Palompon, and Bay Bay—during the cholera epidemic; the disinfection of cholera houses and the establishment of a cholera hospital in Tacloban; public sterilizing stations were opened. The prohibiting of the importation of fruit and vegetables while cholera was prevalent. There has been considerable vaccinating done, and at present two vaccinators in southern Leyte are vaccinating about 1,000 persons a week. The prisoners are utilized for street-cleaning purposes in Tacloban. Drugs and disinfectants were distributed during the cholera epidemic.

"HYGIENE AND SANITARY CONDITION OF TOWNS.

"The entire Province of Leyte seems to be in a very good condition. All the towns on the coast are in good condition with the exception of Carragara, which is low, poorly drained, and where much rubbish has been allowed to accumulate. The west coast towns are in excellent condition. This is especially true of Ormoc, Bay Bay, and Palompon.

"SURIGAO.

"The provincial board of health was organized in 1902 and consists of Dr. Antonio Fernando, president; Dr. Pedro Diaz, municipal physician, and Mr. G. Benedict, treasurer and acting supervisor. Meetings are held bimonthly and are said to take place as specified by law, but I could find no record thereof. This may be due to the fact that Dr. Fernando was in Manila at the time of my visit; I could discover but few records. These were letters received and sent, also telegrams received and sent, and some unclassified reports of deaths, births, and marriages received from municipalities.

"WORK ACCOMPLISHED.

"The usual work in suppression of cholera and the quarantine of the towns on Dinagat Island; the more or less continuous vaccinations; the appointment of municipal health boards, and the cleaning up of a few of the towns, principally of Surigao.

"MUNICIPAL BOARDS OF HEALTH.

"Every town in the province—thirty-four in number—has a health board, but only two are organized according to Act No. 308. These are the boards of Surigao and Butuan. Señor Pedro Diaz is president of the former and Señor Canuto Rosales the latter. As far as I can learn, the municipal boards of health have done nothing except to send in their birth and death reports and to aid in vaccinating.

"HYGIENE AND SANITARY CONDITION OF TOWNS.

"The town of Surigao is low, level, and sandy—in some places swampy—but a system of drainage was instituted in Spanish times, and at present the town is fairly well drained. The streets are clean, although animals are allowed to roam about. There are very few closets of any kind in town. The people defecate in holes or in the ground, using earth or lime to cover the excreta. The water supply is poor, and, except for a few springs back of town and a few wells, the water has to be brought from an island across the bay. The sanitation in most of the towns in this province has been very much neglected. In this province carabaos and hogs are given free use of the ground beneath the houses.

"DISEASES COMMON IN LOCALITY.

"In all three provinces the same classes of diseases prevail, and, except for certain local conditions—as prevailing winds, presence of swampy land, amount and character of the food and water supply—these diseases seem to be present in about the same relative proportion. The variation in the number of deaths caused by certain diseases is largely due, I believe, to the differences of opinion among those reporting the disease.

"The following diseases are common to all localities: Pulmonary tuberculosis, enteritis, meningitis, beri-beri, smallpox, acute and chronic bronchitis, malarial fevers, dysentery, acute and chronic rheumatism, leprosy, syphilis, insanity, and hysteria.

"In the north of Samar, especially at Catarman and Catubig, there prevails a very severe type of malaria, especially noticeable during the change of the monsoon in April and May. Surigao has malaria of a less virulent type during the early part of the southwest monsoon in May and June. In Tubig and Catarman, in Samar, beri-beri prevails very extensively and is of a very virulent type.

"THE AVERAGE DEATH RATE—PRINCIPAL CAUSES.

"In Samar, where the data are more nearly complete, the mortality for the whole province for the year ending June 30, 1903, is given as 59 per thousand. In Leyte and Surigao it is not possible to get figures for the whole of the provinces, but, using those records available, we get a mortality of 53 per thousand for Leyte and 45 per thousand for Surigao. The figures I believed to be much below what really exists, as I believe the population has been greatly overestimated in places and that all deaths are not recorded, especially those occurring in remote barrios.

"The chief causes of death are cholera, smallpox, malarial fevers, beri-beri, phthisis, dysentery, eclampsia, convulsions, and bronchitis.

"The mortality in labor cases is undoubtedly very high, both for mother and child. The mortality among the former being 10 to 15 per cent, and for the children about twice as high. The records in many places show a much less mortality than this—in fact, in many places no mortality at all is credited to this cause.. The high mortality is undoubtedly due to the fact that skilled attendants are seldom employed in confinement cases, and deaths result from faulty positions, exhaustion of prolonged labor, infection, hemorrhage, and eclampsia.

"Leprosy, I believe, is quite common in these three provinces, but there are very few records of same. Here the difficulty is very great in securing data, owing to the fact that the town officials are loath to disclose the names and numbers of lepers in their respective towns, fearing that they will be removed from the province. The same statements apply to insanity. Of two towns of Samar, Oras reports 80 and Basey 92 cases of leprosy.

"DISEASES AMONG DOMESTIC ANIMALS.

"No figures are obtainable, but all of these provinces have suffered with both surra and rinderpest. In Samar practically all of the animals seem to have died. During the year ending June 30, 1903, there were reported in Samar 1,986 animals dying from all classes of disease. Leyte lost a great many carabaos and many horses; some claim the horses died of surra, while others claim the cause of death was glanders. Many chickens have died from what appears to be chicken cholera. Surigao has also lost nearly all of her animals, as well as chickens. At present very few animals are dying. The general estimate of people in these provinces places the animal mortality at from 85 to 90 per cent.

"HISTORY OF CHOLERA EPIDEMIC.

"LEYTE.

"The cholera first appeared in Tacloban, Leyte, on May 9, 1902, and during the remainder of that month 39 persons died of the disease and 18 others died of 'suspected cholera.' The disease spread rapidly up the east coast until practically all the towns were infected. The following month (June) 34 deaths occurred in Tacloban from cholera and 27 others were recorded as 'natural.' The west coast of Leyte had also become infected, but the records covering this period are not available to show to what extent they were infected. The belief prevails that the towns of Ormoc and Bay Bay were infected by natives fleeing from Cebu. The few records covering the epidemic show that it was most prevalent in January, February, and March of 1903.

"On May 29, 1902, five natives escaped from a ship infected with cholera, which was in quarantine in the harbor of Tacloban, Leyte. They made their way in a baroto to the town of Basey, in southern Samar. The night of their escape one of the men died of cholera, and on the following day two others died and their bodies were hidden in the brush. The people living in the house in which they took refuge contracted the disease and died. From this as a focus, it spread over the entire town and from there along the south coast to Guiuan; from here, north along the east coast to Hermano, to Lauang, finally reaching San Julian. It next appeared at Calbayog, where it had been introduced from Cebu. The military authorities here adopted a rigid quarantine and thorough disinfection, and the disease was completely stamped out in a little over a month. During the height of the disease it spread to Limbacuanyan Island, where it raged for three weeks before notice was brought to the provincial officials. On their arrival at the island they found a great many bodies, and in fact found the island was almost depopulated. Later the disease developed along the north coast of Samar, and was particularly severe at Boron, Catubig, and Oris. At present, and in fact since the latter part of June, 1903, there has been no cholera reported in this province. For the year ending June 30, 1903, there occurred 9,598 cases of cholera, and 5,698 deaths in this province from this disease.

"SURIGAO.

"Cholera first appeared on Dinagat Island, northeast of the town of Surigao, in July 1902. The epidemic lasted here until the middle of October. During this time there occurred 113 cases and 58 deaths in the towns of Dinagat, Unip, Sabanay, Libjo, and Milgar, all on Dinagat Island. Libjo and Milgar suffered especially, they having 73 cases. The next outbreak occurred in the southwestern part of the province at the mouth of the Agusan River. Here the cholera made its appearance on October 25, 1902, the infection having been brought from the town of Manbajao on the Islands of Camiguin by a banca load of people fleeing from the disease. Here in Butuan and in the adjoining towns of Talacogon, Tubay, and Nasipit the disease raged with great violence for the next three months, attacking 1,200 persons and causing 966 deaths. In Butuan alone, over 500 died of the disease. The active measures taken by the provincial board of health caused its disappearance before the new year. In the latter part of June and early in July, 1903, Butuan had another epidemic, but of very small proportions, there being but 14 cases and 8 deaths.

"During the months of December, 1902, and from January to March, 1903, the entire east coast was infected, and in the towns of Placer, Bacuag, Taganaan, Clover, Adlay, Taganito, Carrascal, and Canather there were nearly 1,200 deaths. Largely due to the energetic measures of Dr. Biggar, medical inspector, and of the provincial board of health, it was stamped out by the 1st of April, 1903, but it reappeared on Santiago Island in the latter part of that month, in the towns of Jabonga and Mainit, and also at Tubay. In these places it caused 300 deaths in about two months.

"SMALLPOX.

"In these provinces this disease has been present to a greater or less degree for many years. In some places it has been quite prevalent, but not, as a rule, very virulent. In those towns having a military surgeon or other person who conducted vaccinations there has been comparatively little disease.

"SAMAR.

"For the year ending June 30, 1903, there were in Samar 3,989 reported cases and 2,158 deaths. The provincial board of health has vaccinated 7,700, and about 3,000 others of whom no records were kept. At present there are two localities in which smallpox exists, Basey and Laquan. There has been about a dozen vaccinators employed for an average of five months.

"SURIGAO.

There is always more or less smallpox along the east coast and along the Agusan River. During the year ending June 30, 1903, there were 160 recorded deaths from this disease. Over 4,000 persons were vaccinated. At present the disease is quite prevalent along the Agusan River, and quite a number have died at Butuan.

"LEYTE.

"No records available, but there does not appear to be much in the province. All members of provincial and municipal boards of health agree that unless the vaccine is shipped to them on ice its value is very much impaired.

"CUSTOMS AND HABITS OF THE PEOPLE RELATIVE TO HEALTH AND SANITATION.

"The habits common to the Filipino prevail among the people of these provinces. Their food is largely composed of fruit, rice, fish, and camotes. The fish is, as a rule, of good quality. Aside from eating fresh fish, they have several ways of preparing it; one is to split it open, dry, salt, and pack away in layers to be kept for several months before eating; another way is to clean, boil repeatedly until jellified, then squeeze into large balls, which are stored away several days before eating. Oysters are prepared in the following manner: They are placed in large-mouthed bottles, exposed to the air for about a week, until well putrified, and then considered fit to eat. All kinds of shell fish are eaten, especially such as grubs and sea worms; raw fish is also eaten.

"Opium smoking is said to be practiced to a very large extent among the natives, especially on the west coast of Leyte. It is also used very largely by the people living in the towns along the Agusan River, in Surigao, where it is said to have been introduced during the first cholera epidemic, the claim being made that this disease could be prevented by its use. There seems to be the usual amount of vino and tuba drinking and betel chewing.

"HOSPITAL SITES.

"SAMAR.

"At the capital of Samar—Catbalogan—there is one large building which could be rented for hospital purposes. It is well located on the water front and could be secured at a rental of ₱60 to ₱70, Philippine currency, per month. Considerable repairing and alterations would have to be made, involving a large outlay. The building is of strong materials, two stories high, with metal roof; the main part 30 by 45 feet, annex 20 by 25 feet. The lower part is suitable for dispensary and office. The province is willing to donate land on the water front, just out of the main portion of the town. The especial desire of the province is to build, equip, and maintain a provincial hospital for its own needs, but the provincial board states that it would not care to do this unless assured that the Insular Government would not interfere with its plans or limit the amount expended.

"LEYTE.

"At the capital of Leyte—Tacloban—there are but two buildings of strong materials that could be secured for hospital purposes. The location of one is hardly suitable, though the other, now occupied by the Constabulary but soon to be vacated, would be fairly suitable. The rent is high—$125 per month—out of proportion to the value of the building. To convert either one into a hospital would be somewhat expensive. The province has a large tract of land on the bay front. It has a fine view, and it swept by cool breezes from all directions. It is sheltered from severe storms by high land on the west. The land is quite sloping and would need considerable grading. It adjoins the military reservation, and is a part of the land the Insular Government wants for a dock and warehouse. The province is willing to donate this for a hospital site. The one bad feature of it is that the only available water supply is from rain water, but as the rainy season is quite prolonged here it seems certain that sufficient supply could be obtained in this way. The Army has a distilling and ice plant.

"SURIGAO.

"In the town of Surigao there is no suitable building that could be used as a permanent hospital, but for temporary purposes there are two adjoining buildings, centrally located, which could be secured at a moderate rental. The province is anxious to donate land for a hospital site. There are two pieces of land owned by the province, either of which would make an excellent location—one adjoining the provincial building, directly facing the sea in the center of the town, level and in excellent condition; the other back a few hundred yards from the town, situated on low hills. This latter has a fine view and good air. Water would have to be brought from across the bay or piped from a large spring some distance back of the town."

REPORT OF PRESIDENT OF PROVINCIAL BOARD OF HEALTH OF SURIGAO, JULY 1, 1903, TO JULY 23, 1904.

SIR: I have the honor to submit herewith my annual report covering the period from July 1, 1903, to July 23, 1904:

The last case of cholera in this municipality was registered on April 11, 1903. From that date until July 19, no other cases developed and we believed that we had been freed from the epidemic, but on the 18th of July there was a heavy downpour of rain, and the water, in filtering through the ground, probably removed the germs, which were in incubation in the same, and carried them to the wells where the people obtained their supply of water, thus serving as a vehicle for this new contagion. Up to this time the use of tuba and other substances capable of serving as a vehicle for the infection by carrying the pathogenic germs, and which, in our opinion, could be the cause of a new infection, was still prohibited.

On the 20th of July, 1903, another case of cholera was found in the western part of the town, and from that time on further cases occurred until the 17th of August of the same year. The disease seemed to have increased in intensity during the second invasion; 82 per cent of the persons attacked died, while during the first invasion there was a mortality of only 43 per cent.

This time, too, the epidemic was limited to a small area where the sanitary condition of the ground and of the wells which supplied water to the people was bad. The borders of these wells had no protection, being on the same level with the ground, and the rain water poured into them after running over the surface. On this occasion almost all the persons who were attacked lived in a small circuit and drank from the water of the said wells.

In view of this fact, upon my recommendation and with the consent of the municipal council, these wells were closed for public use.

From August 18, 1903, no other cases of the disease developed, and during the whole month of September the health of the town was good; but on the 6th of October another rain, heavier than the former, occurred, and the same thing mentioned in a preceding paragraph again happened with the other wells of the same part of the town, and, notwithstanding the precautions which were adopted, the disease again appeared.

On the 7th of October the first case of this third cholera outbreak was registered, being followed by death; on the next day we were greatly surprised to see that the number of cases had reached 12, with 12 deaths. It was undoubtedly a fact that the infection took place through the water of those wells which had been closed. I was induced to form this opinion by the rare coincidence that, in the second and third outbreaks, the appearance of the disease was preceded by heavy rains and that both were confined to a certain limited area.

The other towns of the province were also invaded at the same time as Surigao.

The following table shows the total number of deaths that were registered in each of said towns:

Town.	Period.		Number of deaths.
	From—	To—	
	1903.	1903.	
Surigao	July 20	Nov. 23	29
Butuan	July 2	July 31	8
Cantilan	July —	Aug. 14	64
Cabarbaran	July 8	July 31	11
Numancia	July 25	Aug. 17	352
Dapa	Aug. 3	Aug. 31	72
Tago	Aug. 4	Aug. 31	193
Tandag	Aug. 23	Sept. 27	70
Lapaz	Aug. 1	Aug. 30	58
Loreto	Aug. 11	Sept. 11	55
Total			912

At the present time the province in entirely free from the disease.

During the year 1903 an epidemic of smallpox also broke out in the province, appearing in the towns which had suffered from the cholera. During the latter part of that year, and the first months of this year this epidemic had made so great ravages in these towns that, although the mortality was somewhat less than the cholera, the difference was very slight. We proceeded to vaccinate in nearly all of these towns, the vaccinations being performed by myself or the municipal presidents, and by these means the disease was stamped out from some of the towns.

At the present time the disease still exists in the towns of Butuan, Bacuag, Gigaquit, Claver, and Anao-aon (a barrio of Surigao).

The following table shows the number of deaths caused by smallpox by towns:

Town.	Period.		Number of deaths.
	From—	To—	
Cantilan	Nov. 13, 1903	Feb. 18, 1904	208
Dapa	Feb. 15, 1904	Mar. 31, 1904	42
Cabarbaran	Dec. 31, 1903	Mar. 15, 1904	205
Butuan	Feb. 7, 1904	June 30, 1904	180
Surigao	July —, 1903		1
Talavera	July —, 1903	Sept. —, 1903	23
Talacogon	Jan. —, 1904	Mar. —, 1904	82
Jabonga	June 10, 1904	July 23, 1904	68
Numancia	May —, 1904	July —, 1904	72
Anao-aon	May 7, 1904	July 26, 1904	22
Bacuag	June —, 1904	do	62
Gigaquit	Mar. —, 1904	do	43
Claver	June —, 1904	do	34
Total			1,042

Vaccination is a measure already known to the people and they know that it is a preventive against smallpox. They obey willingly the call for vaccination, as the idea has been sufficiently inculcated in the minds of the inhabitants by the experience that they have had in former times, and it is very rare to find among them one who does not show vaccination scars several years old. Therefore, in the performance of vaccination, very little effort is necessary to induce the people to be vaccinated.

The following is a table showing the number of persons, by municipalities, vaccinated by myself, the presidents of municipal boards of health, and the Insular vaccinators, and the number of successful and unsuccessful vaccinations:

Town.	Period.		Number of persons vaccinated.
	From—	To—	
Province	July —, 1903	May —, 1904	1,625
Surigao	May 6, 1904	June 6, 1904	2,064
Bacuag	June 4, 1904	June 20, 1904	896
Placer	May 27, 1904	June 29, 1904	861
Batuan	June 7, 1904	July 17, 1904	1,327
Anao-aon	July 9, 1904	July 16, 1904	341
Total			7,114

Number of successful vaccinations	1,897
Number of unsuccessful vaccinations	5,217
Total	7,114

At the present time the towns of Tandag and Tago are infected with dengue and malaria fevers, this latter being of a pernicious character. About two weeks ago I sent to those municipalities a quantity of quinine sulphate in tablets, earnestly recommending to their respective municipal presidents that they persuade the people to take the same, in order to check the ravages of these diseases.

In conclusion I will take the liberty to suggest a plan which, if adopted, will greatly aid our work. The principal obstacle which I have found in the proper performance of my duties during the two years and a half which I have been here is the lack of capable persons to help me in sanitary work. With the exception of the towns of Surigao, Cantilan, Tandag, Hinatuan, Gigaquit, Cabarbaran, and Butuan, where the presidents of municipal boards of health have some ability for the performance of their duties, the towns are without available persons for this kind of work. In the Islands of Dinagat and Siargao there is not a single person capable of performing any work connected with sanitation that might be intrusted to him.

I recommend that a sufficient number of sanitary inspectors be appointed for the province whose duties shall be the same as those now performed by the municipal boards of health, and that the province be divided into sanitary districts, each including a certain number of towns, according to their importance and population. One sanitary inspector should be placed in charge of each of these districts and made responsible for the sanitary work in the same. The salaries of these sanitary inspectors should be paid from the Insular Treasury, at least for the present, as the provincial treasury is short of funds on account of the reduced revenues of the province.

Very respectfully,

ANTONIO FERNANDO,
President of the Provincial Board of Health of Surigao.

REPORT OF SPECIAL SANITARY INSPECTION OF THE PROVINCE OF ZAMBALES.

By Dr. LUIS ABELLA, *Medical Inspector.*

Dr. Luis Abella, medical inspector, Board of Health for the Philippine Islands, under date the 20th of February, 1904, submits the following report of the Province of Zambales:

"PROVINCIAL BOARD OF HEALTH.

"The provincial board of health is composed of a president (Dr. Antonio Olba), the provincial treasurer-supervisor, and the provincial secretary.

"This board has issued ordinances about the hygiene of houses; cleaning of yards, streets, squares, and markets; inspection of cattle for public sale and inspection of ships and sundry articles of commerce, such as leather, etc., sent from this province to Manila, and has recommended also ordinances and steps to prevent infectious diseases, such as cholera and smallpox. Measures have been taken to prevent rinderpest and other cattle diseases. The records of the board are well kept and consist of record of minutes and a book of letters received and sent. The president of the provincial board of health is Dr. Antonio Olba, licenciate of medicine from the Santo Tomas University of Manila. He had arrived only about twenty days before my visit, having been transferred from the Province of Bataan, where he had served as president of the provincial board of health for fourteen months. He is an intelligent, capable, and active man. During his short stay in this district he has endeavored to reorganize the municipal boards of health of the various towns, but has not met with success owing to the lack of capable persons to fill such positions.

"MUNICIPAL BOARDS OF HEALTH.

"*Iba.*—This municipality has an organized municipal board of health composed of an acting president (Señor Jose de Castro, practicante), a municipal representative, the superintendent of schools, and the municipal secretary. This board is rather lax in enforcing sanitary ordinances. On stated days of the week the cart owned by the municipality goes through the streets collecting house sweepings, which are afterwards taken out of town and burned. This service is very poor. House inspection is performed by the president himself, aided by the police. The president also conducts the inspection of all shipping. At present there are two vaccinators at work continuously, vaccinating on an average of 120 persons a day. The records are kept in such books as records of minutes, birth record, death record, and a vaccination record. Monthly reports are sent to the provincial board of health. The president—Señor Jose de Castro—was a practicante of the Spanish army, has no title, and is not registered.

"The town is in an unsatisfactory sanitary condition on account of noncompliance with ordinances. In a certain season of the year—say, from November to February—malarial fever makes its appearance, especially among rice collectors, who, having to sleep nights in the open rice fields, are bitten by mosquitoes that infest such places.

"Diseases common in this vicinity are malaria, tuberculosis, and infantile convulsions. The cemetery, surrounded by a wall, is situated outside the town, and is in a bad state of repair.

"*Palauig.*—This town is consolidated with Iba and forms a part of this municipality. This town is not in a good sanitary condition. The closets are neglected, and domestic animals are scattered all over the town.

"*Masinloc.*—This municipality has no organized board of health. The municipal president is in charge of sanitation of the town. Municipal ordinances are enforced and penalities and punishments are imposed upon infractors, but ordinances relating to animals and closets are not complied with. The municipal secretary is in charge of records; several books are kept, among which are the record of proceedings, and the birth and death book. The death book is kept in a confused manner. Monthly reports are sent to the provincial board of health.

"This town is in a fair sanitary condition, but closets are neglected and domestic animals are permitted to go loose in the streets. The diseases commonly observed in the town are malaria, tuberculosis, and infantile convulsions. A good cemetery is situated outside the town.

"*Candelaria.*—This town is consolidated with Masinloc and under the same direction. The town may be considered in good sanitary condition, but, as in most others, closets and domestic animals are neglected.

"*Santa Cruz.*—This town has no organized municipal board of health. The municipal president is in charge of sanitary maintenance of the town. Municipal ordinances relating to the hygiene of houses, yards, streets, and markets, as well as for the sanitary maintenance of closets and the keeping of domestic animals, are in existence, but most of them are not complied with. There are ordinances regulating leather inspection and the inspection of vessels, which are made by the president. Records kept by the secretary consist of a record of proceedings and a death and birth record. Monthly reports are sent to the provincial board of health. Hygiene in this town is neglected and municipal ordinances are not complied with. Common diseases are malaria, tuberculosis, and infantile convulsions.

"*Botolan.*—This town has no organized board of health, as there is no suitable man for the position. The municipal board is in charge of the sanitary maintenance of the town and the enforcement of all existing ordinances. House and yard inspections are performed by the police. No penalties or punishments are imposed on infractors of ordinances. Records are kept by the secretary and consist of a record of proceedings and a birth and death record. The latter is not kept clearly enough.

"The town is not in good sanitary condition, and, with the exception of the wealthy and educated, the people do not observe the rules of sanitation. Streets are clean, but closets are not. Domestic animals run loose in the streets. The common diseases are malaria, tuberculosis, and infantile convulsions. There is a house in this town of strong materials suitable for a hospital of fifty beds. This is the only house in the whole province suitable for a hospital.

"*Cabangan.*—This town is consolidated with Botolan and under the sanitary regulation of Botolan. The town is unclean, and ordinances are not complied with.

"*San Narciso.*—There is an organized board of health composed of a president (Señor Felix Evangelista, a cirujano ministrante), a member elected by the municipal board, a school-teacher, and the municipal secretary.

"There are ordinances relating to the hygiene of houses and cleaning of yards and streets, but some of them are not enforced. Sanitary inspections are made by the president of the board of health, aided by the police. Infractors are fined and punished by the municipal board. Cattle for public sale are inspected by the president of the board of health.

"Records are kept in three books—a record of proceedings, a record of births, and a record of deaths. Monthly reports are sent to the provincial board of health.

"The president, Señor Felix Evangelista, appointed on the 7th of February, 1904, is well known and has a good reputation. He is intelligent and capable, and has a title (cirujano ministrante) from the University of Santo Tomas of Manila, and is registered under the provisions of Act No. 310, regulating the practice of medicine and surgery.

"This town is not in good sanitary condition. Water-closets are neglected, and animals are allowed to run loose in the streets. Common diseases in the town are malaria, infantile convulsions, and tuberculosis.

"One of the things which attracted my attention was the great number of lepers living principally in the barrio of La Paz. These people are living with their families, caring very little for the danger of contamination. The young and old are afflicted. The cemetery, situated out of town, is in good condition.

"*San Felipe* is consolidated with San Narciso. The sanitation of the town is neglected, as the municipal board has not yet taken action on the matter, and in consequence it is unclean and domestic animals run loose in the streets. There are also several cases of leprosy in the town.

"*San Marcelino.*—Municipal ordinances relating to the hygiene of houses, cleaning of yards and streets, and the sanitary maintenance of closets exist, but most of them are not complied with. Sanitary inspection is performed by the police. Infractors of ordinances are fined and punished. Records, consisting of several books, are kept by the municipal secretary. A record of proceedings, and a birth and a death book are kept. The death record is not very clear. Monthly reports are sent to the provincial board of health. Streets and yards are clean, but closets are neglected, and animals run loose in the streets. Cattle for public sale are not inspected. Common diseases are malaria, tuberculosis, and infantile convulsions. Several lepers were seen in this town, and most of them are believed to be living with their families. The cemetery just outside the town is in an insanitary condition.

"*Castillejos* and *San Antonio* have been consolidated with San Marcelino. They are unclean towns, and sanitation receives very little attention. A member of the municipal board is in charge of each town. Pigs and domestic animals are seen on the streets. There are several lepers in the town who live with their families and circulate freely throughout the town.

"In the town of San Antonio and on the north of the barrio of San Miguel there is a place called Carusipan suitable for the establishment of a leper hospital, the place being located about a mile from the nearest barrio and having near it a lake of fresh water.

"*Subic.*—There is an organized board of health consisting of a president (Señor Jose Imperial, a former practicante during the Spanish régime, who has no registered title), a citizen, and a school-teacher.

"Besides the ordinances issued by the provincial board, there are ordinances relating to the sanitary maintenance of houses, the cleaning of streets, yards, and squares, and the inspection of vessels, which are enforced by the municipal board. Cattle dying of disease are buried with sanitary precautions. Ordinances for the sanitary maintenance of closets and domestic animals are complied with. Records consist of several books, including a record of proceedings and a birth and death record. The death record is confused. Monthly reports are sent to the provincial board of health. The president of the municipal board of health, Señor Jose Imperial, is an intelligent and capable man and is well known. This town is clean and can be considered in good sanitary condition. The common diseases are infantile convulsions, malaria, and tuberculosis. The cemetery is in good condition.

"*Olongapo.*—This town has no organized board of health, sanitary measures being adopted and enforced by the municipal board. Ordinances are in vogue relating to the hygiene of houses; cleaning of yards, streets, and squares, and also for the inspection of vessels. Inspections are made by the municipal president. The town is not provided with private closets, the same being prohibited. The municipal board has built three public latrines on the seashore. These latrines, besides being unsightly in appeareance and in full view of steamers anchoring near said place, infect the waters along the beach, thereby preventing people from bathing in the surf. In my opinion this system should be discontinued, and a system of dry-earth closets established.

"Records consist of three books—record of proceedings and a birth and death record. Monthly reports are sent to the provincial board of health. Common diseases of the locality are tuberculosis, malaria, and infantile convulsions. Some distance from the town a cemetery is situated and is in good sanitary condition.

"The death records are imperfectly kept, and for this reason it was impossible for me to obtain accurate statistics.

"CHOLERA EPIDEMIC.

"Cholera made its appearance in this province (Zambales) during the month of July, 1902, spreading over the whole province and disappearing completely in October of the same year. The next year (1903) a few cases were again observed, in the town of Iba only. Generally it may be stated that the cholera was more deadly among the poorest classes of people. Each town enforced the regulations passed by the provincial board of health referring to the isolation of the sick and to maritime and land quarantine. Communication from one town to another was restricted. The municipal board bought medicines to give free of charge to the poor people. Special attention was given to the inspection of provisions and drinking water.

"CUSTOMS AND HABITS OF THE PEOPLE.

"The inhabitants of this province understand very little of hygiene. The wealthy people generally live neatly, but the poor, especially the Ilocano laborers living in the town, live under very unfavorable conditions. I observed that the only thing to which they give attention is the drinking water. I observed also the opium smoking is a common practice, the people believing that it cures disease. They are not in the habit of calling a physician when they are ill, but generally call a mediquillo, who treats them with some medicinal plant that they take with great faith. The lower class of people live upon a diet containing very little nutriment, hence they are very easy victims to disease.

"Malaria is the principal cause of death in this province. Every year, from November to February, the time of rice collection and the cutting of wood up in the mountains, it makes its appearance in different forms. In this connection I wish to suggest that, because of the impoverished condition of the province and taking in consideration the victims of malaria, proper medicines be given to the various health boards for free distribution. Rinderpest has caused great loss of cattle in this province. Carabaos and cattle died of rinderpest and horses of surra and rinderpest. At present these diseases seem to have disappeared, although in Iba some cases of rinderpest were observed among the carabaos. There are ordinances in reference to diseased animals, and the provisions in reference to isolation are enforced.

"The number of lepers is perhaps not more than sixty. They should be isolated instead of being scattered throughout the province as they are at present."

THE CARE OF INFANTS.[1]

By Drs. JUAN MICIANO, ARISTON BAUTISTA, MARIANO MARTIN, AND MANUEL GOMEZ.

At the request of the Board of Health for the Philippine Islands and the city of Manila we have here condensed in a few brief paragraphs, without pretension of any kind, in simple language within the comprehension of everyone, a series of observations, the fruit of our studies and the experience acquired in the practice of the medical profession in this country. The purpose of these notes is to tend to overcome the alarming mortality occurring among children in the Philippines.

CLEANING AND CARE OF THE UMBILICAL CORD.

The bathing of the newborn child and the treatment of the umbilical cord demand special care to avoid cutaneous diseases so frequent in these Islands and the terrible infections occasioned by carelessness in the handling and treatment of the cord.

Immediately after birth the child must be wrapped in a thick towel to avoid the sudden change of temperature from the womb of the mother to that of the outer air, infants being extremely susceptible to such changes.

When the palpitation of the cord diminishes or ceases, the cord should be ligated. A fine string of linen or silk thoroughly cleansed, or previously boiled, is adapted to this purpose. The cord is tied at three times the thickness of the finger from the abdominal wall; it must be tied strongly and twice around in order to avoid hemorrhages. Once tied, it is cut, at a distance of 1 centimeter above the ligature, with scissors that have been previously placed in boiling water or passed through a flame to thoroughly cleanse them and to kill germs that might infect the wound in the cord. After being cut, the cord is wrapped in a compress of fine, clean cloth about a span square, cut from one of the sides into the center. Through this slit in the cloth the cord, well oiled with borated vaseline, is passed and is wrapped in the compress; on top of which is placed a layer of absorbent cotton and a small bandage tightly tied to keep the whole appliance in place. If borated vaseline is not at hand, oil disinfected by previously boiling may be used; or powder of lycopodium, although with this or with the dry treatment the cord becomes hard and troublesome, and on the skin and around the cord scabs form, beneath which the skin becomes excoriated and irritated.

The cord must never be treated with ashes nor with brown paper, as is customary here, since any lack of cleanliness in the care of the cord exposes the child to terrible diseases, such as tetanus, erysipelas, or inflammation of the veins of the cord.

The above-described treatment of the umbilical cord must be renewed every three days, or earlier if the bandages become soiled with urine. It must be performed with the utmost care, and the person in charge of the operation must previously wash the hands carefully with soap and boiled water and thoroughly clean the finger nails.

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[1] Health Bulletin No. 3, February 1, 1904.

The cord falls away from the third to the sixth day. This may, nevertheless, occur at a later date without the slightest danger to the child, and for this reason any attempt to hasten the fall must be avoided. Once the cord has fallen, the scar must be oiled with borated vaseline and again covered with a clean compress composed of cotton and the bandage. Any ulceration or suppuration of the scar may be overcome by simply washing with water, boiled or borated, and oiling with vaseline.

The natural openings of the body, such as the mouth, anus, and genital organs, will be carefully examined at once after birth, so that if there be any defect it may be corrected.

The mouth will be thoroughly washed, cleaning it of any substance that might interfere with nursing.

WASHING.

Oil the entire surface of the body of the newborn child with vaseline or oil to assist in the softening of the fatty material with which its body is covered. With soap and lukewarm water, to which a little alcohol has been added, wash the child, taking especial care to remove, with a sponge or a piece of cotton, the fatty material accumulated in the folds of the skin, such as those of the groin, the armpits, and the spaces between the fingers.

The child being bathed, it is wrapped in a heavy towel to dry. Wash the cord after this bath with water which has been boiled or with a solution of carbolic acid, made up of 1 part of acid dissolved in 100 of boiled water, to keep it free from all infection and to heal it, as before described.

Special care must be taken with the eyes of the child; wash them carefully with a bit of cotton, soaked in boiled water, and watch attentively any irritation, however slight, in one or both eyes, to prevent ophthalmia, which may bring with it serious consequences. The surface of the entire body must be lightly dusted with lycopodium or rice powder, to protect the tender skin of the infant from all irritation or chafing.

Once the baby is dried, the treatment of the cord as above related is begun, and later follows dressing.

CLOTHES.

The clothes must not be tight nor fastened with pins, since these may hurt the child and thus produce restlessness or nervous disorder. The clothing used should be in accordance with the temperature of the season in which the child has come into the world. We advise that the underclothes be a chemise of fine cloth, woolen if possible, which may be readily adjusted to the body; upon this is placed a jacket of heavier cloth that serves as a protection for the body, and a swathing cloth covering the abdomen and the extremities; all this being held in place by a band five or six fingers in width, the latter two so arranged that they do not impede respiration, though holding the clothes in place and serving to prevent any deviation of the spinal column.

Dressed as above, it is a common practice to place the child beside its mother, in order that she may give it the warmth it lacks in the first days of life. This practice in injurious to the newborn child and ought to be abandoned, since the mother herself, in this period, may infect her offspring. For this reason the baby should be removed from the bed and put in a well-protected place, properly covered, so as to preserve the warmth its body produces. This end may be obtained by using woolen or cotton blankets as covers, arranging them in such a manner that their weight does not make difficult or in any way impede the natural functions of the body. As this arrangement can not be made at the mother's side, the child must be removed and laid in a place entirely apart from her.

The newborn child must always be laid upon its left side, so that if it vomits the matter may flow freely from the corner of the mouth and not enter the respiratory organs and thus produce asphyxiation.

Later on, when the child comes to produce a natural warmth, it is customary in this country to leave is practically without clothes. This practice must be abandoned, for the child is now approaching a time when the greatest care is essential—the period of teething—in which gastro-intestinal disorders, which are greatly aggravated by chilling, occur. The child must continue to wear clothes adapted to the season. During the hot weather it may be refreshed by baths during the day, this being far preferable to leaving it naked.

During the first eight or ten months daily baths will be given in lukewarm water; these will last for five or ten minutes, this time being sufficient for the water to dissolve, soften, and remove the matter that impedes the natural functions of the skin.

TEETHING.

It is well for mothers to know the different periods of teething, not only to prevent the diseases so frequent in this period but also that they may avoid attributing to this process, as frequently occurs, disturbances which are altogether independent of it. This knowledge, too, will be of value in regulating the diet of the child, whether this be natural or artificial. The first and second sets of teeth must be distinguished the one from the other. The first fall out in a period more or less brief and are replaced by the second set, which is permanent. The appearance of the first, or milk, teeth now occupies our attention. They are twenty in number and appear in the following order:

Incisors, middle, from four to seven months.
Incisors, lateral, from four to nine months.
First molars, from six to twelve months.
Canines, from eight to sixteen months.
Second molars, from ten to twenty months.

All the teeth of the lower jaw appear before those of the upper, excepting the laterial incisors, in which the order is reversed. To this general law there are exceptions, and it sometimes happens that once the lower middle incisors appear, the appearance of the upper ones is delayed almost until that of the neighboring side teeth.

The data given above on the appearance of the teeth are not rigorously exact. There may be great variations. The first teeth frequently come out before or after six months, and sometimes, in exceptional cases, they have already appeared at birth. The canines appear sometimes after sixteen months, and it is not rare to see the second molars come out up to the third year. In spite of the above, the periods given are those with which the teeth more frequently appear. A period of three months usually elapses between the appearance of the various groups of the milk teeth.

Among the common people, the greater part of the pathological disorders which occur in early life are attributed to dentition. Nothing is further from the truth and nothing more convenient to explain the ailments of the child, digestive troubles on the one hand, sometimes accompanied by diarrhea, or fever, on the other, which becomes so intense at times as to cause convulsions or cerebral disorders. These are conditions which seem to have direct connection with the coming of the teeth.

During teething, keep the chest and abdomen of the child constantly covered, even when it walks and is separated from the mother.

The clothing must be changed as often as cleanliness demands; and as regards the outer clothing, there must be a daily change. In every case it must be subject to the action of lye, since in many places other means of washing are not to be had. Lye is easily obtained, and its destructive action upon germs makes its use preferable, but clothing washed with lye should be subsequently rinsed with clean water. It is further essential that the clothes of the child be washed apart from those of adults.

The rooms in which the child lives, while in the nursing period, must be dry and well ventilated and be entirely apart from damp or swampy ground.

Under no condition must the baby be allowed to live, as is the custom in towns and barrios, with the animals in the house. In many places, the pig, the dog, and the chickens form a part of the household, living from nightfall to daybreak under the same roof. The uncleanliness of these animals causes them to throw off fetid and noxious materials, which are injurious to the health of the child and to that of adults. These animals must be put out of the sleeping quarters, and the practice above mentioned, of allowing the child to move about with them, must not be tolerated under any consideration.

It will also be noted that the space beneath the house must be well ventilated, clean, and dry, since communication exists, on account of the construction of the Filipino home, between the floor of the room and the ground. If this latter be in an insanitary or dirty condition, it is the same as if these conditions existed in the very house, and the consequences are always serious.

The child must not be allowed to sleep in a draft and thus be chilled. On the contrary, a place will be sought in the room which, while not being in front of a window or door, is always ventilated, and in which the air is constantly, but not violently, renovated. While sleeping, the child should be well covered.

During early life the child needs a great deal of sleep. Care will be taken not to disturb its rest, which will be interrupted only by necessity of nursing, or by the natural functions of the body. Once the child is fed and washed, it returns again to sleep. As it grows older, the period of repose diminishes until it is reduced from eighteen to twenty hours in the first month to twelve hours in its second year of life.

In the first months of life the child's body must be kept in a horizontal position, that is to say, extended, both while awake and asleep.

The vertical position and the tendency to support the child on its feet, as often occurs, in order that it may learn to walk the earlier, brings with it deviation and curvature of the spinal column and legs, and the dilatation of the walls of the abdomen, because of the weight of the internal organs. This latter produces digestive disturbances.

As it grows older, the child will naturally assume a vertical position, it being unnecessary to resort to violence to produce this result. If the child is cared for in a secluded place, it must be taken out in the open air at least for three or four hours a day, care being taken that this does not occur after sunset, nor in midday during the hot season, and that the child be carried into dry and well-aired places.

In the same manner we condemn the custom of violently rocking the baby whenever it becomes cross. The cause of its restlessness must be found out, for the child does not cry without cause. This may be for the lack of food, or on account of clothes badly placed, on account of a pin that may be annoying it, or because it happeans to be not clean, or, finally, because of abnormal development of gases in the digestive organs, the latter being very frequent and provocative of loud crying. To overcome such action on the part of the child, mothers and nurses are given to rocking them with violence. We disapprove of this measure because it tends to produce nervous affections, and advise that the cause of the crying be always investigated. If the child needs cleaning, bathe it; if gases have formed in the stomach, try to expel them by some slight enema, or by rubbing the body mildly with manzanilla oil, or by giving it a small teaspoonful of an infusion of anise.

The massage of the walls of the abdomen, as ordinarily practiced, we absolutely forbid. Before this be resorted to, the mother must know how and why it is done. It is not sufficient that any irresponsible person proposes this measure; the object and the end of the practice must be known. On the one hand, it may give admirable results; on the other, its effects may be disastrous. In a word, it must be understood to be properly employed.

We utterly forbid, as barbarous and pernicious, the practice of applying to the child the shell of the cocoanut sharpened and heated red hot, so frequently done in this country to overcome convulsions, and we utterly disapprove, also, the practice of applying leeches to the child, in case of high fever or convulsions, without the prescription of a physician.

The early appearance of the teeth is a sign of good health; its delay indicates an unhealthful condition or at least deficient nutrition. Any delay in the appearance of the first teeth and in the succession of the various groups of teeth must put the parents on their guard, as it is their duty in such case to call for the advice of a physician.

Coincident with the delay in teething, when resulting from a faulty nutrition, is noted a delay in the closing of the anterior fontanelle which ought to gradually become smaller and smaller until reduced to a very small area in two years, and to have completely disappeared at three. Proper care must be taken with the diet of the child in such cases as this, to see that it is sufficiently nutritive.

Dentition being the commonest cause of digestive disturbances, nursing during this period must not be discontinued unless the milk of the mother or nurse be clearly deficient.

In case of digestive disturbances, which always demand attention, redouble the precautions given in another part of this circular, when noted in the period of dentition. No matter whether the diet be natural or artificial, or both, remember that the best time for change from nursing to some other form of alimentation is after the appearance of the canine teeth and first molars (from twelve to twenty months).

VACCINATION.

Vaccination is absolutely necessary. The child must be vaccinated upon completing its second month of life, unless there exists an epidemic of smallpox, in which case it will be vaccinated before that time. Arm-to-arm vaccination must not be permitted. The vaccine must come from the calf and be secured from the laboratory, which is especially equipped for the preparation of virus.

It is well not to take the child out of the house from the third to the tenth day after vaccination, for during this period it is more susceptible to the influence of the outer air, and some physical disturbance may thus be produced.

The vaccinated part of the child will not be bathed during the incubation period of the virus. To avoid chafing and ulceration, protect the exposed part of the arm with a piece of clean gauze or cotton, held in place by a bandage. If the arm appears unusually red and the child is greatly annoyed by the vaccination, warm the arm by placing upon it clean cloths well soaked in tepid boiled water. By all means avoid the nasty custom of rubbing the vaccination with "patis" or fish broth, or with the juice of tomatoes, milk, etc.—remedies used under the pretext that they make the vaccination more effective. Do not oppose revaccination. By vaccinating every two years the terrible epidemics of smallpox which reign periodically in the Philippines will be avoided.

NURSING.

The mother must continue nourishing the child with her milk as she nourished it with her blood during pregnancy. This obligation of nature must not be evaded, since maternity brings with it duties and sacrifices which, once filled, form the noble crown of womanhood and make a mother worthy of the respect and consideration of the society in which she lives. Nursing, whenever possible, is preferable to any other form of alimentation. In case of tuberculosis in any of its forms, syphilis, leprosy, and chronic diarrhea, nursing must not be permitted under any consideration. During the course of infectious diseases, as typhoid fever, pneumonia, etc., nursing must be suspended, although the custom of the country is so opposed to this it seems almost useless to inveigh against it.

There are certain laws compatible with the carrying on of the daily tasks of the mother which, nevertheless, indicate that nursing should not be continued. But the physician ought to decide any questions of this kind. Malformation of the breast, at first sight, would seem to impede nursing, since the child cries and becomes greatly annoyed because it can not draw the milk. This slight difficulty, however, can readily be overcome by using a breast pump until the nipple forms. Retracted nipples would also seem to prevent nursing, but this may be overcome by using a mechanical appliance. These are little articles made of rubber and sold in the pharmacies. They are placed over the retracted nipple at which the child nurses.

The newborn child may go without nursing from sixteen to twenty hours after birth. If the milk comes slowly, a few small teaspoonfuls of boiled water slightly sweetened, or sterilized milk mixed with an equal quantity of boiled water, may be given.

Sirups of all kinds, juices, and decoctions from plants commonly used in this country must be absolutely prohibited, since the fermentation produced by them in the delicate organs of the child is decidedly injurious.

From the first week the time between nursing must be gradually extended. In the first week the child may nurse every hour, or every hour and a half. By the third week, only once every two hours, or eight or nine times every twenty-four hours. From two to six months, at intervals of two or three hours. It is not well to nurse the child whenever it cries. The period of nursing will usually be from ten to fifteen minutes. The child must never be allowed to sleep with the nipple in its mouth.

After nursing, the nipple will be washed with borated lukewarm water, or with boiled water alone. The reason for the interval between nursing is to avoid accumulating a great quantity of milk in the stomach of the child. The same reason applies in the matter of nursing but for fifteen minutes at a time, since the accumulation of a considerable quantity of milk in the stomach produces vomiting and diarrhea.

It is not desirable that the mother, on nursing, lie down, as is customary here, since, apart from the fact that this position is not the most appropriate, it impedes free respiration of the child, as the breast covers the nostrils partially, if not entirely. As a result of this it will be noted, if a little attention is given the matter, that while nursing in this position the respiration of the child is interrupted and broken. It must be remembered that every obstruction in respiration makes swallowing difficult and tends to force a part of the milk into the larynx, thus producing a cough and sometimes a mild asphyxia. The drawn face of the child and the interruption of the respiratory functions denote the occurrence of this difficulty. The mother ought to be seated to properly nurse the baby, but if for any reason it be necessary to nurse while lying down, the child's head should be slightly raised to avoid the difficulty above mentioned. We earnestly recommend that mothers nurse their children alternately at either breast, avoiding a practice, if they are given to it, of nursing with one breast only, since the excessive use of one breast results in its development, while the disuse of the other produces diminution and atrophy. From this practice comes the complaint we are accustomed to hear from some mothers that one or the other breast is but poorly supplied with milk. To overcome this, we advise that, instead of using the breast which is abundantly supplied, they insist upon the child nursing first at the breast which is poorly supplied, with the assurance that the latter will regain all its activity and soon will be equal to the former.

WET NURSES.

If the mother finds it impossible to nurse her child, not through the unjustifiable complaisance of certain physicians nor for other reasons not to be dealt with here, but for just motives which really prevent her from fulfilling the holy duty of nursing her offspring, and she would have to recur to the substitution of a nurse, it must be seen that the nurse have certain qualifications that guarantee the health of the child intrusted to her. First of all, she must have perfect health and have no trace of tuberculosis, syphilis, or leprosy, and be further free from chronic diarrhea as well as certain skin diseases. It is advisable that the child of the wet nurse be as nearly as possible of the same age as the child intrusted to her care. The nurse's breasts should be firm, and the veins should be well developed. One of the best guaranties of the nurse is the healthfulness of her own child. But even if all these qualifications are found present, a microscopical examination of the milk would still be useful. If after two or three weeks with the nurse the child does not increase in weight and no illness explains this difficulty, the nurse must be changed, since it is clear that her milk does not nourish the child.

The poorer classes who can not afford a nurse have to use artificial methods. But before taking up these it may not be amiss to make some remarks on the use of the milk of certain ruminant female animals by country people of other lands. Nursing may be direct from the teats of a trained goat or sheep, either of which lend themselves readily to this purpose. In case this method be used, before allowing the child to apply the mouth, the belly and teats of the animal will be washed with soap and boiled water and cooled with a brush. These precautions will always be observed before nursing.

THE NURSING BOTTLE.

This will be as simple as possible—a flask of transparent glass with a nipple of rubber or of softened ivory is best. Nursing bottles of complicated mechanism or with long tubes must be avoided as injurious to the health of the child.

The bottle and the nipple will be washed in boiled water every time they are used, care being taken that not the slightest particle of milk or solid matter be allowed to remain within them. The nipple will be turned inside out if of rubber, or perfectly cleansed on the inside if of ivory. This practice is somewhat troublesome, but it is well worth the while in return for the manner in which it benefits the child, since by it many ills that come from uncleanliness are avoided. The milk commonly used in this country is that of the carabao or cow; both are good and meet all the requirements of a proper diet for the child; nevertheless we recommend that the quality be carefully noted,[1] and that it be observed that it is not adulterated with substances foreign to the normal composition of milk.

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[1] The municipalities are charged with the examination of this as of other articles exposed for sale to the public.

In case prepared milk has to be used, we advise sterilized rather than condensed milk. The former in purity and ease of preparation has advantages over the latter. It is understood that this variety of milk can not be used pure if the child is young, but must be mixed with water.

Before using, such milk will be diluted with water previously boiled; for new-born children, a preparation of one to one, supposing the milk to be of good quality; if it is already mixed with water, the good judgment of the reader must serve as a guide, it being kept in mind that milk too thick or too thin are both injurious to the child, since both cause digestive disturbances. As a general rule, the younger the child the more diluted will be the milk with which it is fed, but the preparation will never be less than one to three. As the child grows, the quantity of water will be decreased until the milk is taken undiluted.

The quantity of milk necessary for each nursing will be seen from the following table:

Period.	Quantity.	Applications to the breast.
	Grams.	
First week	15 to 30	9
Second week	45	9
Third week	60	9
One month	75	7
One and one-half months	90	7
Two months	105	7
Three months	120	7
Four months	135	7
Six months	160	5
Seven months	180	5
Nine months	200	5
One year	220	5

NOTE.—A soup spoon holds 15 grams.

COMBINED NURSING.

Combined nursing is an entirely justifiable recourse when the mother has not a sufficient quantity of milk to satisfy the demands of the child. In this case, between nursing, a certain quantity of sterilized or boiled milk will be given the child. It is not a good practice to give the breast and follow at once with the nursing bottle, for the child will again require nursing before the milk will have had time to accumulate in the mother's breast.

The quantity of milk necessary each time the nursing bottle is used may be regulated by the preceding table.

Until the child has reached the age of 8 months, it must receive no food but milk, or the following substances: sago, arrowroot, tapioca, preparations of barley, etc., in case economy be imperative. Apart from these, remember that as a general rule any other diet will occasion gastro-enteritis or other disturbances that are the root and fount of many ills.

We make no mention of foods prepared outside of this country, for those who can afford to purchase these will have opportunity to consult with a physician.

We advise mothers that they forever desist from the custom inveterate in the Philippines, of prematurely feeding the child with food not appropriate to its age, as rice, even though this be soft, sauces and broths made from the ordinary food of the family, sweets, and, what is still worse, mixed dishes, fruits, and bits of meat. Food previously masticated by adults must not be given the child, for this exposes it to infection which may bring with it terrible consequences.

WEANING.

When and at what age must weaning occur? Premature weaning is injurious. Late weaning is beneficial, provided that it does not affect the mother, and it is in addition an excellent recourse in case of illness. We can fix, as a general rule, from sixteen to twenty months, the weaning being brought about gradually. First one nursing period will be replaced with a little milk, sago, arrowroot, or rice, well cooked, then two or three nursing periods will be replaced, and so on until nursing is abandoned altogether and preparations of barley alone, or barley and corn mixed, or of rice, may be used instead of preparations of milk. Once the child is weaned, it may be placed upon the following diet: From 7 to 8 in the morning it will be given a little preparation of milk made of 160 grams of milk, crumbs of bread, rice, arrowroot, or sago; if bread is used, a tablespoonful of crumbs of loaf bread with a sufficient quantity of sugar, all to be boiled and stirred until well thickened. If sago or arrowroot is used, 2 grams of either will be mixed with the same quantity of milk and sugar, if necessary. From 11 to 12, soft-boiled eggs with biscuit softened in the yolk, or a preparation of vermicelli and cow's milk; or 150 grams of broth made from fowl or chicken, or morisqueta well crushed, a little bread and milk, yolk of egg, with milk and fish of good quality. From 3 to 4 o'clock in the afternoon, rice with 150 to 160 grams of milk or sago and biscuits or a purée of potatoes, or other tubers such as the sweet potato. If the child awakes at midnight and requires food, it may be given a little milk. After seventeen or eighteen months a little chicken, or beef scraped or crushed to a paste, or beef juice may be given.

During the period of growth a preparation made of the following cereals will be found to give good results: Two small tablespoonfuls of wheat, two of barley two of bran, and two of corn. Boil these in 600 grams of water—that is, the contents of an ordinary bottle for the age of 2 or 3 years—then pass through a fine cloth. If in boiling, the water is largely evaporated and only a third part of the liquid remains, another one-third part of cold boiled water may be added. This preparation is very nutritious and helps in the development of the child. All food given the child should be freshly prepared and not be allowed to stand and ferment before being eaten.

If the foregoing rules are observed, and the advice given in them put into practice, we are sure that within a few years the population of these Islands will be increased and their development and prosperity thereby assured.

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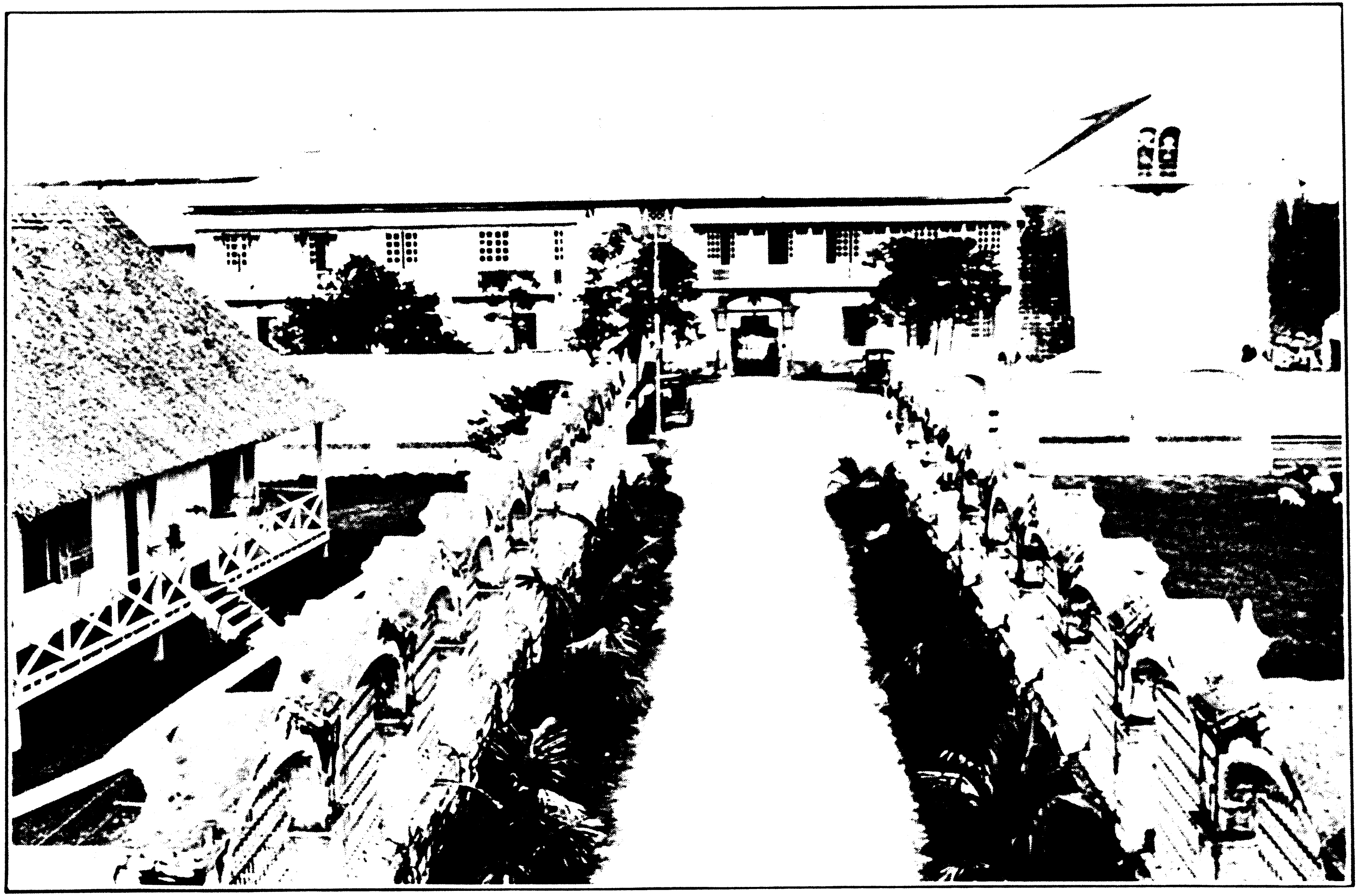


Plate I. FRONT VIEW OF WOMEN'S DEPARTMENT, SAN LAZARO HOSPITALS.

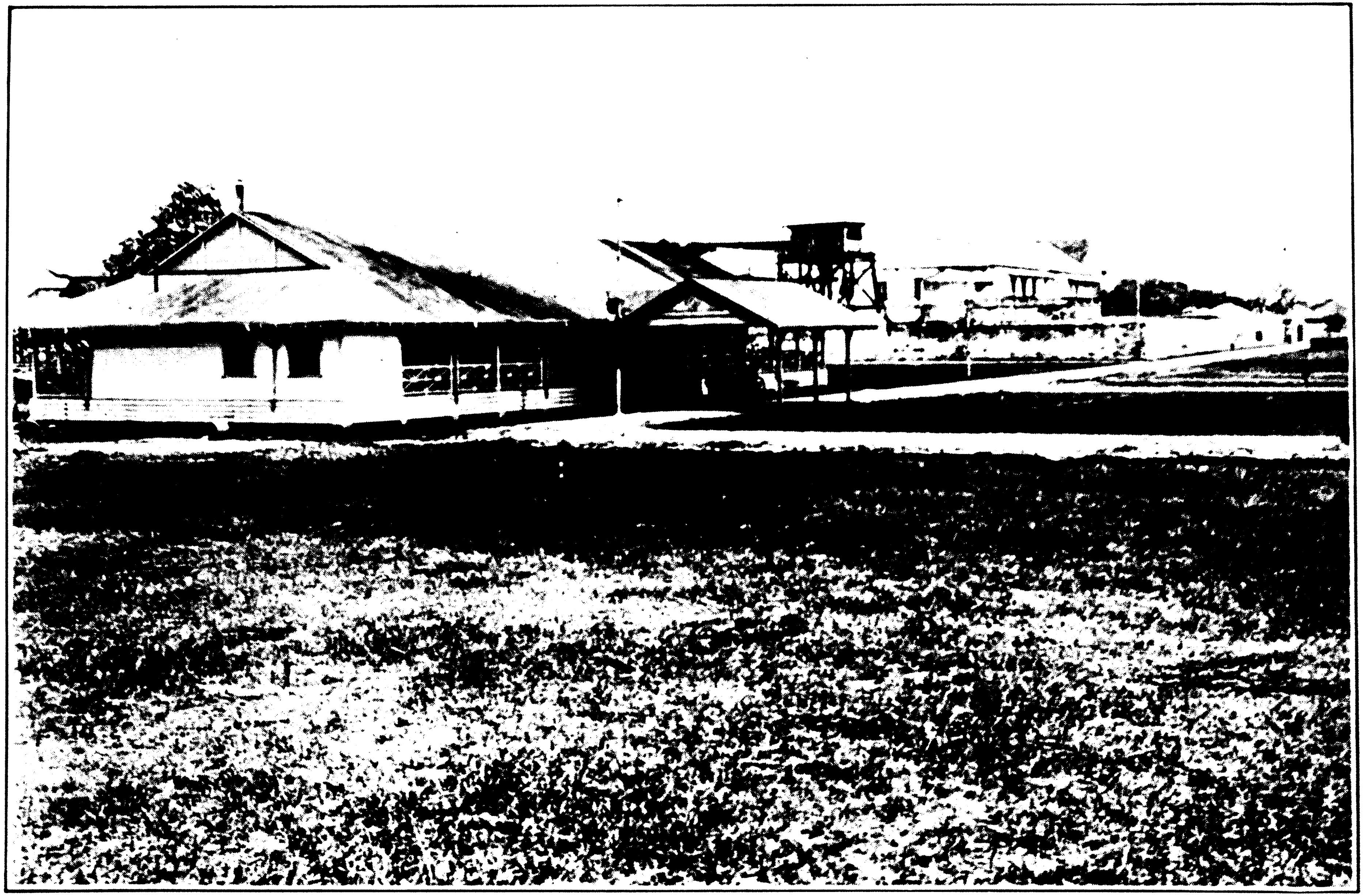


Plate II. FRONT VIEW OF CONTAGIOUS-DISEASE HOSPITAL.

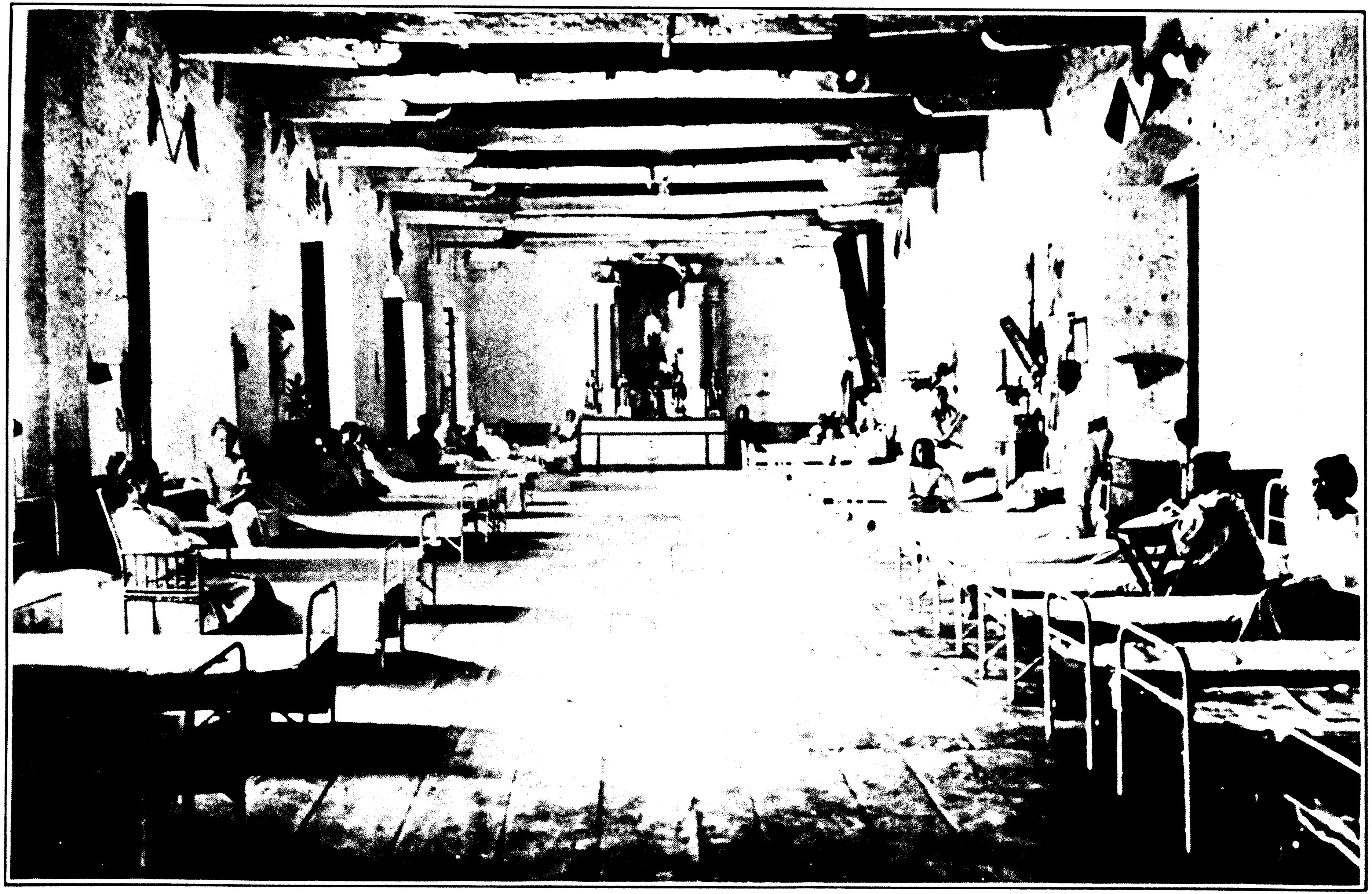


Plate III. INTERIOR VIEW OF WOMEN'S WARD, LEPER DEPARTMENT.

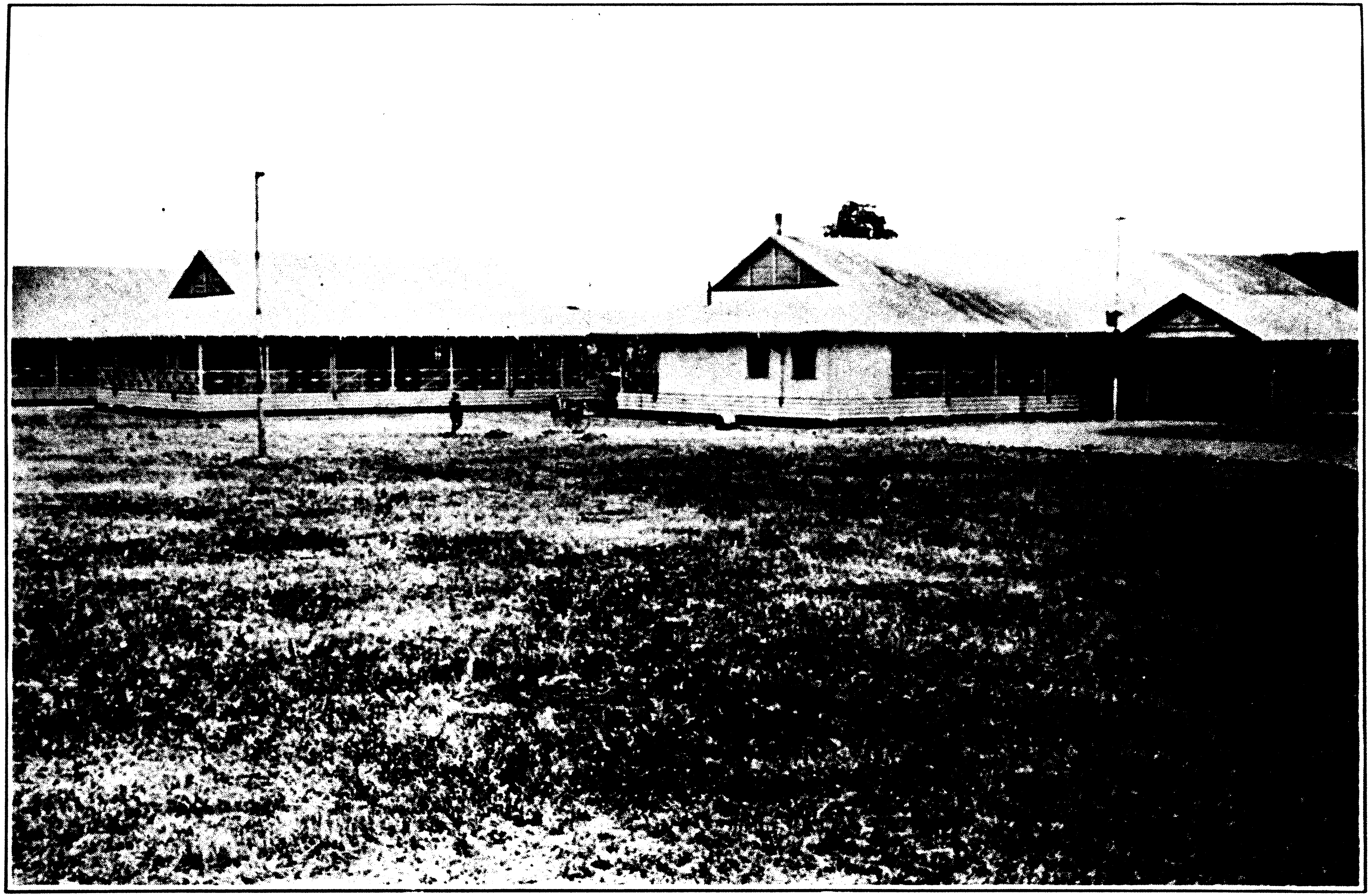


Plate IV. CONTAGIOUS-DISEASE HOSPITALS.

Plate V. AMERICAN SANITARY INSPECTOR IN UNIFORM.

Plate VI. NATIVE SANITARY INSPECTOR IN UNIFORM.

Plate VII. SEÑOR SATURNINO ESPEJO, CHIEF SUPERVISING VACCINATOR.

Plate VIII. NATIVE VACCINATOR IN UNIFORM.

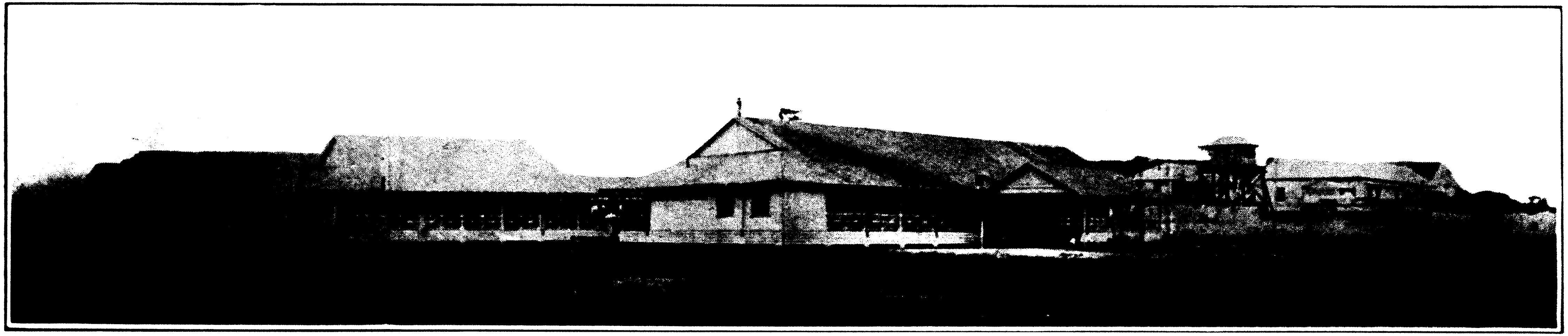


Plate IX. GENERAL VIEW OF HOSPITAL FOR INFECTIOUS DISEASES.

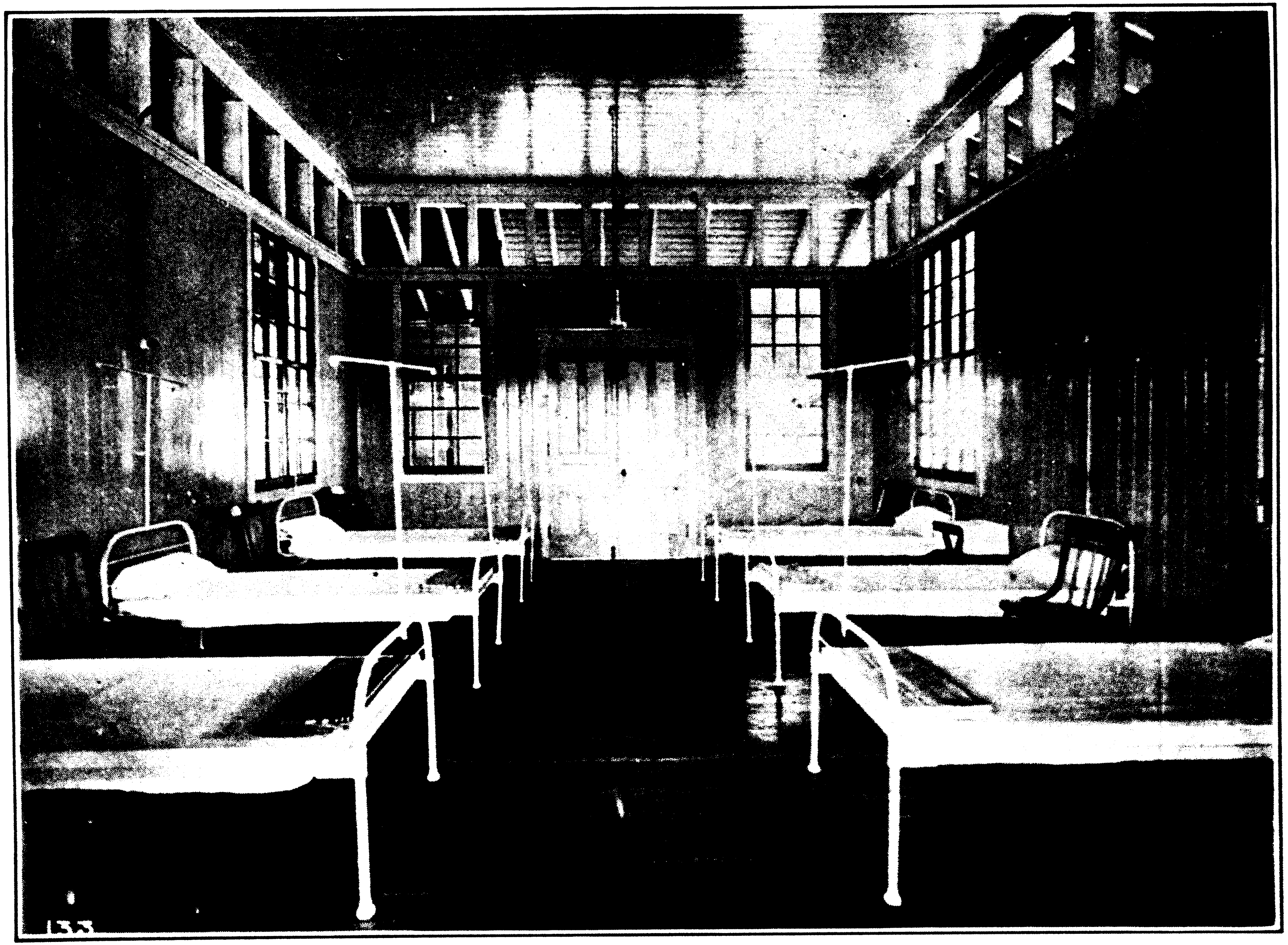
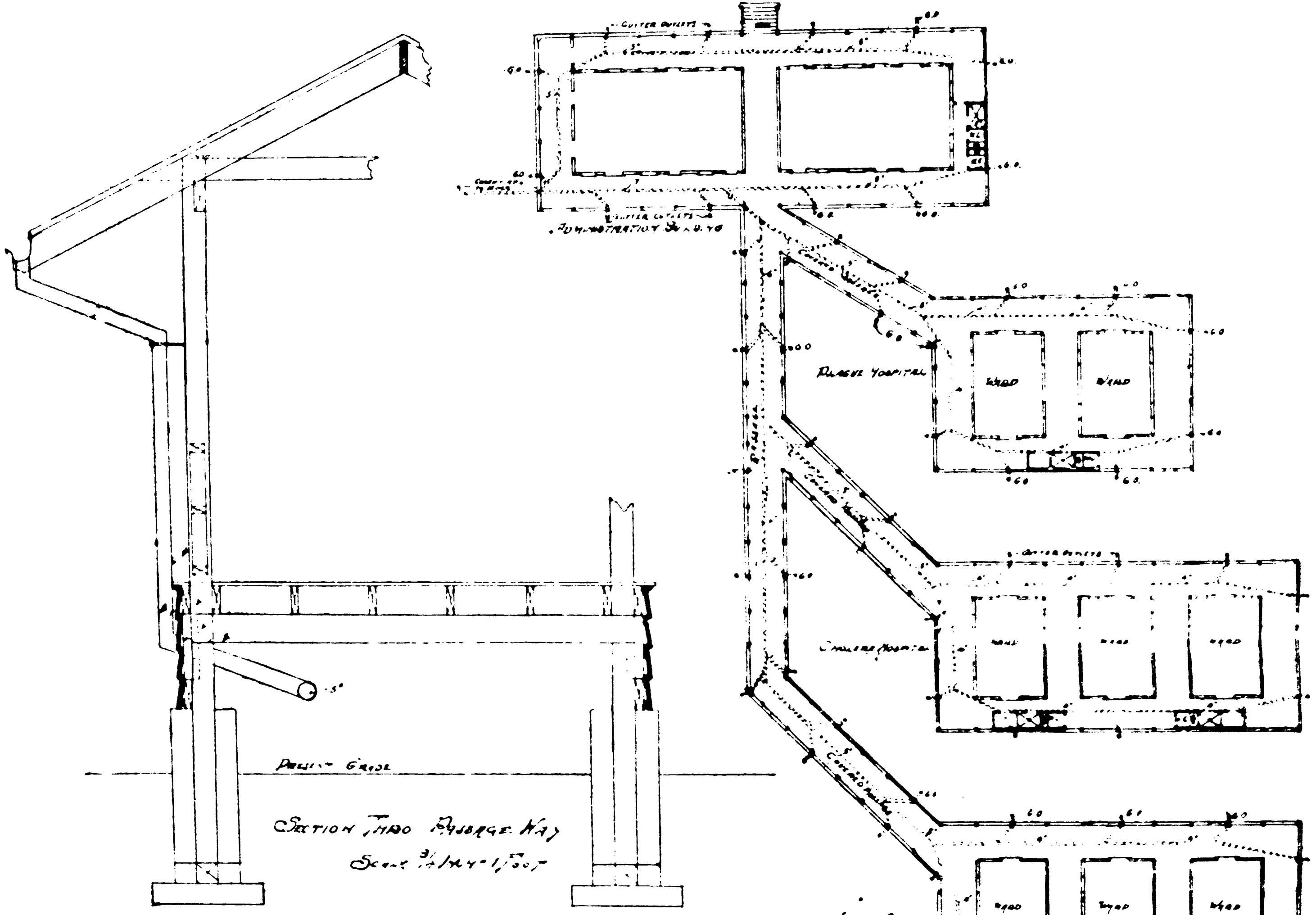


Plate X. A WARD IN THE HOSPITAL FOR INFECTIOUS DISEASES.



Section thro Passage Way
Scale 3/4 Inch = 1 Foot

Block Plan Contageous Diseases Hospital
Scale 1/16 Inch = 1 Foot

(S) Architect.
Chief of Bureau of Architecture

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PLATE XI. PLAN OF HOSPITAL FOR INFECTIOUS DISEASES.